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ABSTRACT

Designed primarily for Missouri vocational agricultural instructors participating in the Farm Business Management Analysis Program, this instructor's guide, consisting of 10 lessons, deals with adjusting a farm business to increase profits. The following topics are covered in the individual lessons: law and the farm family, planning income tax management, closing the record book and planning cash flow, evaluating family living expenses, determining the most profitable livestock enterprise, determining the most profitable cropping system, planning the farm marketing program, adjusting capital investments to increase net profit, planning for efficient labor use, and controlling costs. Included in each section are suggestions for a review of previous materials covered, an objective, motivational techniques, key points to be addressed in the lesson, information to be introduced during the lesson, guidelines for holding a group discussion, conclusions, end-of-class announcements, and a list of materials needed by students and by instructors. (MN)

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Instructor's Guide

UNIT III

for

FARM BUSINESS MANAGEMENT ANALYSIS:
Adjusting the Farm Business to Increase Profit

Robert Denker
Bob Stewart
Norman Rohrbach

Volume 15
Number 3

Produced by the Instructional Materials Laboratory
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FOREWARD

The lessons in this unit, Unit III--Adjusting the Farm Business to Increase Profit, are designed primarily for Missouri vocational agriculture instructors participating in the Farm Business Management Analysis program. Each lesson is a self-contained instructional package and includes material for the monthly classroom session and the monthly on-the-farm instructional activity. The lessons are written using the Missouri format for adult instruction as outlined in the Administrative Guidelines for Farm Business Management Analysis (page 5). Specific suggestions for using the material in preparing to teach the lessons are included on the following pages os this publication.

A key activity to successful local programs is the monthly on-the-farm instruction period. These must include checking with the enrollees to be certain records are being kept up-to-date and the correct procedure is being used. Effective farm management decisions must be based on current, accurate data and analysis.

The lessons are designed to be used with a group of enrollees primarily composed of local young and adult farmers. Monthly sessions should start in October and be conducted with subsequent lessons on a monthly schedule. Adaptations may need to be made in some communities to permit more than one lesson per month and none during the spring crop season. In essence, the curriculum is designed for flexibility affording each instructor the latitude to adjust the curriculum to insure its most effective implementation.

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TO THE INSTRUCTOR--SUGGESTIONS FOR USE

Unit III--Adjusting the Farm Business to Increase Profit is designed as a curriculum guide for Farm Business Management Analysis (FBMA) instructors to use in helping Missouri young and adult farmers analyze their records. The unit is composed of ten lessons which include topics such as law and the farm family, income tax management, family living expenses, planning crop and livestock enterprises, farm labor use, and cost control.

The outline of each lesson is based on the Missouri format for adult instructional materials which is very similar to procedures applied to using the problem solving approach. The major components of each lesson include the review, objective, motivation, key points (called study questions when using a structured problem solving approach), introduction of information (facts, examples, etc., needed to address each key point), group discussion, conclusions, announcements, social, on-the-farm instruction, and materials needed to teach the lesson (transparencies, handouts, etc.).

Since a curriculum cannot be "all things to all people," instructors are encouraged to use this unit as a guide to teaching FBMA. For example, transparencies and handouts are suggested for use, but could be replaced with self-designed materials which the instructor feels are more appropriate in a specific community. Furthermore, while one instructor uses every transparency and handout provided with the lesson, another may only use a select few because the information could be presented in a more appropriate manner.

Transparencies and handouts are numbered sequentially throughout the unit and are labeled using the abbreviations, TM and HO, respectively. In a few instances, transparencies from a preceding lesson are suggested for use with a subsequent lesson. Furthermore, several transparencies and handouts are combined on one sheet and are consequently labeled with both identification codes (TM-20 and HO-58). Handouts should be duplicated by the instructor, while transparencies can be self-produced or ordered from the Instructional Materials Laboratory at the University of Missouri-Columbia. In cases in which handouts and/or transparencies from Unit I and II are used in Unit III, a note is included in the materials list. Also, materials of Unit III are identified from those of Unit I and II.

Each enrollee, or pairs of enrollees (if spouses, business partners, etc., are enrolled simultaneously) needs a Missouri Farm Business Analysis Record Book. In addition, the instructor may want enrollees to maintain a notebook in which notes, handouts, and examples can be placed. If this is the case, the instructor will probably want to punch all handouts for convenient insertion in these personal notebooks. Besides being a home or office reference for enrollees to use when making actual entries, the notebook could provide a convenient, useful reference for the instructor and enrollees to use during on-the-farm visits (suggested with each monthly lesson).

Before teaching a lesson, the instructor should thoroughly review the lesson and accompanying materials. Instructors piloting these lessons generally suggest two methods for preparing to teach the lesson: 1) read the lesson several times and highlight (circle or color code) specific parts to facilitate instruction, and 2) outline a lesson plan, based on the FBMA lesson, which can be taken into class and used without the help of the original FBMA lesson. These procedures help assure that the instructor is thoroughly acquainted with the information and materials before going into class and is not relying solely on the printed curriculum.

Quizzes have been included at the end of some of these lessons. These are provided as additional materials which can be used to motivate the enrollees; they are not intended to be used as measures of achievement at the end of each lesson.

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FARM BUSINESS MANAGEMENT ANALYSIS

Unit III: Adjusting the Farm Business to Increase Profit

Lesson 1: Law and the Farm Family

A. Review

Since this is the first lesson for this year, a review is impossible. You may want to let each family report on progress and/or other happenings since the last meeting. The main purpose is to re-establish the group's working relationship

B. Objective

To analyze the present situation so that an estate plan can be finalized.

C. Motivation

Show TM-1 and ask the class, "What will happen to your farm if you die tomorrow?" Ask how many have an estate plan. Point out that while it is possible to not have a will, everyone has an estate plan. If an individual does not have a personal plan, the state where he or she lives has a plan that will be followed. Give the enrollees a copy of HO-1, Missouri Law for Intestate Descent, and discuss the distribution of property under this law. The question is, "Can I improve on the state's plan?" If yes, the rest of this lesson should provide introductory information that will be of value.

Point out to the enrollees that property distribution and minimizing estate taxes may not be a problem for them now, but other estate planning considerations like caring for their children in the event of their deaths might be.

D. Key Points

Key points for this lesson are:

1. **How do we start estate planning?**
2. **How should we hold title to property?**
3. **What should be known about a will?**
4. **How can we plan for our children's care?**
5. **What are some guidelines to follow when estate planning?**
6. **How can we use sole proprietorships, partnerships, and corporations in planning estates?**

E. Introduction of Information

This lesson represents an attempt to inform you of the basic estate planning tools available. You are urged to consult with your attorney and other professional advisors when you consider making decisions about your own situation.

This lesson is not to be relied upon as an authoritative basis for interpreting estate planning laws. You should consult with your attorney when legal problems arise.

Begin by pointing out that the prinicples outlined in this lesson are based on tax laws. For legal questions, the students should see a lawyer and/or a tax accountant. A good first step is to form an estate planning team composed of a tax lawyer, a tax accountant, and an insurance agent. The students should remember that not all lawyers and accountants specialize in tax matters. Their local lawyer or bar association and accountant may be able to recommend qualified persons to help on the team.

1. How do we start estate planning?

Show TM-2 for estate planning objectives. Explain why objectives are needed and why each of these are important.

a. Estate Planning Objectives:

(1) Provide family support - to provide for the surviving spouse and children as an example.

(2) Provide retirement income - to provide for the needs of the husband and wife for their lifetime.

(3) Provide business opportunities for children - many parents desire to help children start farming and/or other businesses - education, homes, etc.

(4) Provide for an equitable distribution among children - if one child was helped in starting to farm will an equivalent amount of support be given other children?

(5) Provide charitable support if desired - many persons desire to leave a percentage or fixed dollar contribution to a church, charity or educational institution.

(6) Minimize taxes and reduce probate entanglements.

b. Checklist to meet objectives:

Show TM-3 as a basis for discussing a checklist of items needed to enable an estate plan to reach the objectives. The following provides information to go with TM-3:

(1) Adequate income - Is there adequate income to meet the above objectives? If not, a decision will need to be made on which objectives have the highest priority - usually in the order listed.

   (a) Having enough income to plan with

   (b) Minimize income tax

(2) Long term business existence - as an example, letting a son or son-in-law continue the farm business.

(3) Long term retirement program - many elderly people "fear" running out of money or being a burden on others.

(4) Liquid estate - many large estates are tied up in real estate, machinery, and livestock and are not liquid - there is no cash available. Provide liquidity through:

   (a) Sale of inventory of crops, livestock, and/or machinery

   (b) Sale or mortgage of land

   (c) Life insurance proceeds

   (d) Savings

   (e) Installment payment of estate taxes

(5) Ability to attract children back to the business.

(6) Situation in which planning will work.

   (a) Compatable family members

   (b) Adequate physical facilities

   (c) An expanding business

   (d) Competent management

2. How should we hold title to property?

Show TM-4 outlining how title can be held. Explain what each of these mean and the legal ramifications of each.

a. How title can be held for property

(1) Tenancy by the entirety:

This form of joint ownership is limited to spouses and sometimes is further restricted to real estate. As in joint tenancy, each spouse owns the whole property. Upon the death of one spouse, the other automatically becomes the sole owner. It is not recognized in some states.

Joint tenancy and tenancy by the entirety frequently are used as substitutes for a will. With a joint tenancy and tenancy by the entirety, a will has no effect except to provide the beneficiaries authority to use the property during probate without charge or liability in the event of damage.

(2) Joint tenancy with right of survivorship:

Two or more persons hold property jointly; each owns the whole property and not a fractional part. If one person dies, his interest ordinarily passes to the other joint tenants without need of probate. It cannot be passed along by will as long as there is a surviving tenant.

(3) Tenancy in common:

Each person owns an undivided fractional part of the property. Unlike joint tenancies, a surviving wife's interest in a tenancy in common is not included in her deceased husbands estate for federal estate tax. The husband's interest passes to his heirs, though, only through probate. Tenancy in common carries with it no right of survivorship and the fractional interest of a deceased passes in accordance with the will or the laws of descent and distribution.

b. Dividing of joint tenancies in real property.

Discuss the effect of a husband and wife who have real estate in joint tenancy dividing it for real estate planning purposes. The following points help clarify rules from the 1981 law:

(1) The 1981 legislation repealed the "credit for services" rule, effective at the end of 1981, and broadened the "fractional share" rule to cover all property owned by a husband and wife in joint tenancy regardless of type and regardless of when acquired. Thus, for deaths after 1981, one-half the value of property owned by a husband and a wife in joint tenancy or tenancy by the entirety is taxed at the death of the first joint tenant to die. Of course, the 100% federal estate tax marital deduction would be available to cover the amount included in the deceased's estate.

(2) The 100% federal gift tax marital deduction simplifies the problem of severing joint tenancies between spouses. These now can be altered with no concern as to federal gift tax consequences. In the past, severance of joint tenancies in real property acquired by a husband and wife after 1954 have often involved possible federal gift tax consequences. That will not be the case after 1981.

(3) In general, transfers to a spouse after 1981 are exempt from gift tax return filing requirements.

c. Ownership of the family car.

Point out that the car should probably not be owned by more than one person. Rather, that person should own the car who drives it most often when both parties are in the car.

Example: The title is in both names and an accident occurs. The person driving the car is sued and the insurance company pays off. The injured party then can sue the other owner of the car with no insurance coverage.

d. Household checking account.

The checking account used for family support should be held in joint tenancy. However, there may be an inheritance tax liability and the account may be frozen for some brief period, but neither of these features is so objectionable as to influence the decision as to whether or not a joint account should be created.

3. What should be known about a will?

Show TM-5 and TM-6 to show what a will can and cannot accomplish. Explain each point and use examples to clarify for the student.

a. What a will can do for you - a will is a legally recognized document by which a person can distribute property as he/she sees fit, can suggest an executor to handle the settlement of the estate, and can suggest a guardian for his minor children. If you do not leave a will directing distribution of your property, state law will control its distribution. You may prefer that certain of your heirs receive specific items of your property, ranging from family heirlooms to substantial holdings of land. Such desired distribution can be achieved by the execution of a will.

b. What a will cannot accomplish.

(1) Transfer assets of a joint tenant or tenant by entirety.

(2) Change beneficiaries of a life insurance policy - a life insurance policy is a contract between the policy owner and the company.

(3) Transfer government bonds held in co-ownership or POD (Payable on Death).

(4) Instructions as to burial - you must have told someone your wishes about burial before death.

(5) Cut off widows rights to:

(a) Homestead

(b) Exempt property

1) Family bible, all wearing apparel of family, all household electrical appliances, all household musical and other amusements, all household and kitchen furniture, appliances, utensils, and implements

2) One year's maintenance

3) An election to take against the will one-half of the estate if no lineal descendants, one-third if there are such descendants

4. **How can we plan for our childrens' care?**

Show TM-7 to show the differences between a trust and a guardianship. Explain each advantage and disadvantage and how one can avoid the pitfalls.

a. Property under guardianships must be released at age 21 and possibly sooner. This is not true of a trust.

b. If there are two or more minor beneficiaries, shares are equalized immediately upon vesting of an estate in minors in the case of guardianships. This is not true of a trust.

Example: If estate is left to guardianship, the estate is divided up. If one minor is ill, the monies left may be used up before they become of age. This would leave the minor without any monies to carry on. In a trust, each one would have to carry the load equally, as if the parents were still alive.

c. Authority can be given for greater flexibility in a trust administration than a guardianship administration.

In a guardianship, if some assets need to be liquified, it would take a court order.

d. Death of a ward during minority requires administration of his estate, with few exceptions. This need not be true of trust.

In a guardianship, the estate will pass through litigation to be settled but in a trust, this would not be the case.

e. Income from a ward's estate is taxed to him. A trust may not require all the income paid to him unless needed; any income not so paid will be taxed to the trust and not to the ward.

5. **What are some guidelines to follow when estate planning?**

Show TM-8 to show the different zones in which estates may fall. Show TM-9 to show the unified credit over the next few years. Work an example in each zone to show students how each zone works. Use future values (HO-2) to show how inflation affects the unified credit. As an example, if the family has land valued at $500,000 and inflation is expected at five percent annually for 20 years, it would sell for $500,000 x 2.6532, or $1,326,600. Thus, there would be no estate tax due now, but in 20 years, a lot of tax might be due if the laws haven't changed.

An explanation of each zone can be made as follows:

a. Zone I: If the combined wealth of husband and wife is expected to be no greater than the equivalent deduction amount from the available unified credit at the death of the surviving spouse, the optimal strategy may be to have the property outright to the survivor at the death of the first to die. For individuals in this category, however, income tax considerations could also be important.

b. Zone II: If the combined wealth of husband and wife is expected to be no greater than twice the equivalent deduction from the available unified credit at the death of the first spouse to die, the optimal strategy may be to - (1) divide the property between the spouses equally during life, and (2) each leave the other a life estate in the property owned with no marital deduction claimed at the first death.

c. Zone III: If the combined wealth of husband and wife is expected to be more than twice the equivalent deduction from the available unified credit at the death of the first spouse to die, the optimal strategy may be to - (1) divide the property between the spouses equally during life, (2) create a partial marital deduction at the death of the first spouse to die, and (3) leaving the remaining property of the first spouse to die in a life estate for the other spouse.

Remind the enrollees that under the new laws, each living spouse may give a $10,000 gift to as many recipients as desired, tax free, each year. If this limit is exceeded, the unified credit can be applied to the taxable amount, just as it can apply to estate taxes after death. However, it can only be used once.

6. **How can we use sole proprietorships, partnerships, and corporations in planning estates?**

Point out that certain features of the sole proprietorship make it the frequent and logical choice of a person who is beginning a business and who is able to finance himself. Because of the advantage of other forms of business organization, the sole proprietor should reconsider periodically the possibilities of changing the business form. Show TM-10 and discuss with the following guidelines:

a. Estate planning possibilities with a sole proprietorship.

(1) The sole proprietor and an employee can contract in advance for the sale and purchase of the business at the retirement or death of the owner.

(2) The sole proprietor may secure, on a limited basis, the advantages of a profit sharing loan.

(3) Other sources of cash can be planned to meet expenses which are incidental to death.

(4) The business can be transferred during the owner's lifetime in consideration of the purchaser's promise to support the seller and his wife until their death.

(5) The owner's will can permit one child to buy the business, the proceeds being divided among other children.

(6) An employee can be given some authority and rights to encourage him to continue with the business.

(7) The sole proprietorship can be converted into a partnership or a corporation.

b. Estate planning possibilities with a partnership.

Show TM-11 to discuss partnership:

(1) Total income tax can be minimized by sharing business income with family members who are partners.

(2) Business continuity beyond death of a partner is possible with proper planning.

(3) Retirement income of a partner can be improved by a planned sale of the retiring partner's interest to his partners.

(4) A deceased partner's widow can be supported by payments from the partnership, either as a share of the profits or as payments in purchase of a decedent's interest.

(5) A guaranteed market for deceased partner's interest can be created in the surviving partners.

(6) A child of a partner can be attracted to the business as a co-owner.

(7) Ownership and management can be transferred to the next generation gradually and smoothly.

(8) A partner's will can dispose of his interest in the business.

c. Estate planning possibilities with a corporation.

Show TM-12 to discuss corporations:

(1) A child of a stockholder can be brought into the business as co-owner conveniently and with little risk of disrupting the business.

(2) Family investments can be encouraged with the assurance of limiting liability to the original investment.

(3) Death taxes can be reduced by lifetime gifts of shares of stock without serious risk to the continutiy of the business.

(4) Business continuity beyond death of the principal stockholder is possible with proper planning.

(5) The corporation can elect to be taxed like a partnership, thereby avoiding federal income tax and still attaining certain advantages of a corporation.

(6) Social security benefits may be increased by increased salary payments.

(7) Income tax savings and increased retirement income may result to stockholder-employees through the use of a pension or a profit sharing plan.

(8) A deceased stockholder's widow can be assisted by a salary continuation plan, payment of death benefits, or payments in purchase of decedents' shares of stocks.

(9) A guaranteed market for a deceased stockholder's shares can be created in the surviving stockholders or in the corporation.

(10) Sale of shares by a minority stockholder need not disturb the business.

(11) The value of minority interest can be protected.

(12) Transfer of shares can be used for specific purposes as:

    (a) Increase employee's ownership in lieu of higher wages

    (b) Increase children's ownership to keep them interested in the business

    (c) Minimize death taxes

    (d) Equalize advantages given to children

(e) Repay special favors of one child

(f) Piecemeal sale to provde retirement income

F. Group Discussion

Let the group discuss the application of ideas developed throughout the lesson. If possible, have a local lawyer or tax accountant share their ideas with the group.

G. Conclusions

Conclusions that might be listed include:

1. Estate planning should be started as soon as real property is owned or when your death can create a hardship on others.
2. Knowing how to hold title to property can help in estate planning.
3. Proper care of children should be a major goal of estate planning.
4. The type of business organization has an impact on the estate planning process.
5. Estate plans should be reviewed periodically and updated.
6.

Announcements

Next meeting, we will discuss Planning Income Tax Management.

Social

On-the-Farm Instruction

It would be advantageous for you to visit with the local lawyers and tax accountants to get a feel of the way they answer questions about estate planning and find out what questions are most often asked.

Discuss with the family their goals in estate planning and help them to establish these goals by guiding them with goal selection and a good estate planning team.

You may want to run the computer program ESTI (Estate Tax Analysis) on VPI for each family to illustrate their tax liability with their present estate plan.

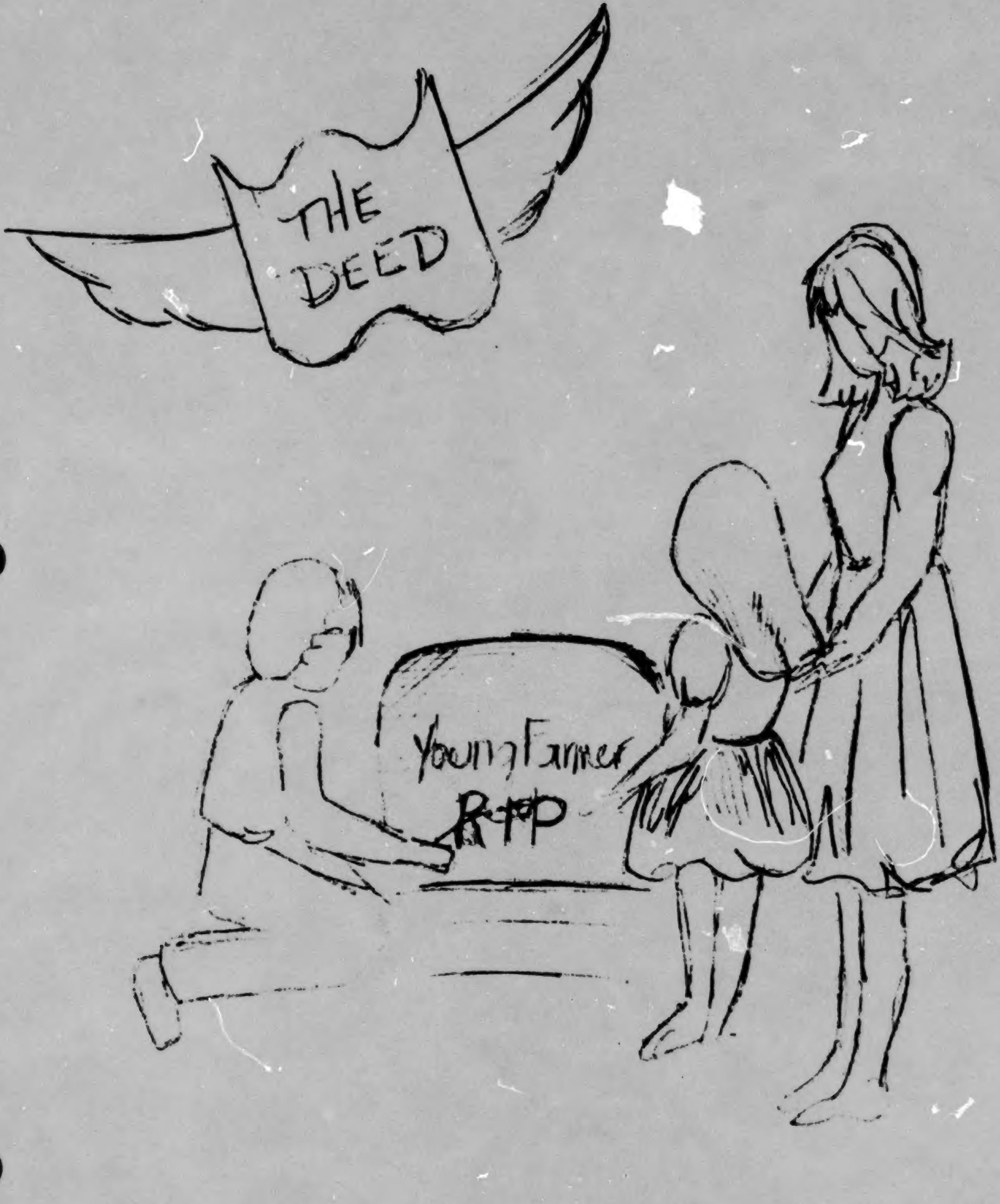
Materials Needed

Instructor

TM-1: The Deed
TM-2: Estate Planning Objectives
TM-3: Checklist to Meet Estate Planning Objectives
TM-4: How Title Can Be Held on Property
TM-5: What a Will Can Do For You
TM-6: What a Will Cannot Accomplish
TM-7: Advantages of a Trust vs. Guardianship
TM-8: Zones of Estate Planning
TM-9: Estate Tax Credits
TM-10: Estate Planning Possibilities With a Sole Proprietorship
TM-11: Estate Planning Possibilities With a Partnership
TM-12: Estate Planning Possibilities With a Corporation
Missouri Agricultural Law (reference)

Student

HO-1: Missouri Law for Intestate Descent
HO-2: Future Value at Compound Interest
Farm Record Analysis from Previous Year
Missouri Farm Business Analysis Record Book


THE DEED
Young Farmer
RIP

ESTATE PLANNING OBJECTIVES

PROVIDING FAMILY SUPPORT

PROVIDE RETIREMENT INCOME

PROVIDE BUSINESS OPPORTUNITIES FOR CHILDREN

PROVIDE FOR AN EQUITABLE DISTRIBUTION AMONG CHILDREN

PROVIDE CHARITABLE SUPPORT IF DESIRED

MINIMIZE TAXES AND REDUCE PROBATE ENTANGLEMENT

CHECKLIST TO MEET ESTATE PLANNING OBJECTIVES

ADEQUATE INCOME

LONG TERM BUSINESS EXISTENCE

LONG TERM RETIREMENT PROGRAM

LIQUID ESTATE

ABILITY TO ATTRACT CHILDREN BACK TO THE BUSINESS

SITUATION IN WHICH PLANNING WILL WORK

HOW TITLE CAN BE HELD ON PROPERTY

TENANCY BY THE ENTIRETY

JOINT TENANCY WITH RIGHT OF SURVIVORSHIP

TENANCY IN COMMON

WHAT A WILL CAN DO FOR YOU

DISTRIBUTE PROPERTY OF OWNER AS THE OWNER SEES FIT

SUGGEST AN EXECUTOR OR ADMINISTRATOR TO HANDLE THE ESTATE SETTLEMENT

SUGGEST GUARDIANS FOR MINOR CHILDREN IN CASE BOTH PARENTS ARE DECEASED

WHAT A WILL CANNOT ACCOMPLISH

TRANSFER ASSETS OF A JOINT TENANT OR TENANT BY THE ENTIRETY

CHANGE BENEFICIARIES OF A LIFE INSURANCE POLICY

TRANSFER GOVERNMENT BONDS HELD IN CO-OWNERSHIP OR POD

LEAVE INSTRUCTIONS AS TO BURIAL

CUT OFF WIDOW'S RIGHTS

ADVANTAGES OF A TRUST VS GUARDIANSHIP

TRUST	GUARDIANSHIP
PROPERTY WILL REMAIN IN TRUST AS LONG AS STIPULATED	PROPERTY RELEASED AT AGE 21
MONIES REMAIN IN TRUST AND USED AS IF PARENTS WERE STILL ALIVE	MONIES DIVIDED AT DEATH AND EACH MINOR CHILD HAS A SET AMOUNT OF MONIES
FLEXIBLE AUTHORITY	A COURT ORDER NEEDED TO SELL ASSETS
IN CASE OF A MINORS DEATH THE ESTATE NEED NOT BE LITIGATED	WITH THE DEATH OF A MINOR THE ESTATE WILL HAVE A HIGH PROBABILITY OF LITIGATION
NOT ALL OF THE INCOME FROM A TRUST NEED TO HAVE INCOME TAX PAID BY THE WARD--THE TRUST MAY PAY SOME OF THE TAX	INCOME FROM A WARDS ESTATE IS TAXED AND PAID BY THE WARD

ZONES OF ESTATE PLANNING

ZONE I: COMBINED WEALTH OF HUSBAND AND WIFE LESS THAN THE EQUIVALENT UNIFIED CREDIT DEDUCTION ($600,000 in 1987 AND LATER)

STRATEGY: LEAVE PROPERTY OUTRIGHT TO SURVIVOR AT DEATH OF FIRST

ZONE II: COMBINED WEALTH OF HUSBAND AND WIFE NO MORE THAN TWICE THE EQUIVALENT UNIFIED CREDIT DEDUCTION ($1,200,000 in 1987 AND LATER)

STRATEGY:
1) DIVIDE PROPERTY EQUALLY DURING LIFE
2) EACH LEAVE THE OTHER A LIFE ESTATE IN THE PROPERTY OWNED WITH NO MARITAL DEDUCTION CLAIMED AT THE DEATH OF THE FIRST

ZONE III: COMBINED WEALTH OF HUSBAND AND WIFE MORE THAN TWICE THE EQUIVALENT UNIFIED CREDIT DEDUCTION (OVER $,200,000 in 1987 AND LATER)

STRATEGY:
1) DIVIDE THE PROPERTY EQUALLY DURING LIFE
2) CREATE A PARTIAL MARITAL DEDUCTION AT THE DEATH OF THE FIRST TO DIE
3) LEAVE THE REMAINING PROPERTY OF THE FIRST SPOUSE TO DIE IN A LIFE ESTATE FOR THE OTHER SPOUSE

ESTATE TAX CREDITS

DYING IN YEAR	CREDIT	"EQUIVALENT" MAXIMUM EXEMPTION
1981	$ 47,000	$175,625
1982	62,800	225,000
1983	79,300	275,000
1984	96,300	325,000
1985	121,800	400,000
1986	155,800	500,000
1987 AND LATER	192,800	600,000

ESTATE PLANNING POSSIBILITIES WITH A SOLE PROPRIETORSHIP

1. THE SOLE PROPRIETOR AND AN EMPLOYEE CAN CONTRACT IN ADVANCE FOR THE SALE AND PURCHASE OF THE BUSINESS AT THE RETIREMENT OR DEATH OF THE OWNER.

2. THE SOLE PROPRIETOR MAY SECURE, ON A LIMITED BASIS, THE ADVANTAGES OF A PROFIT SHARING PLAN.

3. OTHER SOURCES OF CASH CAN BE PLANNED TO MEET EXPENSES WHICH ARE INCIDENTAL TO DEATH.

4. THE BUSINESS CAN BE TRANSFERRED DURING THE OWNER'S LIFETIME IN CONSIDERATION OF THE PURCHASERS PROMISE TO SUPPORT THE SELLER AND HIS WIFE UNTIL THEIR DEATH.

5. THE OWNER'S WILL CAN PERMIT ONE CHILD TO BUY THE BUSINESS, THE PROCEEDS BEING DIVIDED AMONG OTHER CHILDREN.

6. AN EMPLOYEE CAN BE GIVEN SOME AUTHORITY AND RIGHTS TO ENCOURAGE HIM TO CONTINUE WITH THE BUSINESS.

7. THE SOLE PROPRIETORSHIP CAN BE CONVERTED INTO A PARTNERSHIP OR A CORPORATION.

ESTATE PLANNING POSSIBILITIES WITH A PARTNERSHIP

1. TOTAL INCOME TAX CAN BE MINIMIZED BY SHARING BUSINESS INCOME WITH FAMILY MEMBERS WHO ARE PARTNERS.
2. BUSINESS CONTINUITY BEYOND DEATH OF A PARTNER IS POSSIBLE WITH PROPER PLANNING.
3. RETIREMENT INCOME OF A PARTNER CAN BE IMPROVED BY A PLANNED SALE OF THE RETIRING PARTNER'S INTEREST TO HIS PARTNERS.
4. A DECEASED PARTNER'S WIDOW CAN BE SUPPORTED BY PAYMENTS FROM THE PARTNERSHIP, EITHER AS A SHARE OF THE PROFITS OR AS PAYMENTS IN PURCHASE OF A DECEDENT'S INTEREST.
5. A GUARANTEED MARKET FOR DECEASED PARTNER'S INTEREST CAN BE CREATED IN THE SURVIVING PARTNERS.
6. A CHILD OF A PARTNER CAN BE ATTRACTED TO THE BUSINESS AS A CO-OWNER.
7. OWNERSHIP AND MANAGEMENT CAN BE TRANSFERRED TO THE NEXT GENERATION GRADUALLY AND SMOOTHLY.
8. A PARTNER'S WILL CAN DISPOSE OF HIS INTEREST IN THE BUSINESS.

ESTATE PLANNING POSSIBILITIES WITH A CORPORATION

1. A CHILD OF A STOCKHOLDER CAN BE BROUGHT INTO THE BUSINESS AS CO-OWNER CONVENIENTLY AND WITH LITTLE RISK OF DISRUPTING THE BUSINESS.

2. FAMILY INVESTMENTS CAN BE ENCOURAGED WITH THE ASSURANCE OF LIMITING LIABILITY TO THE ORIGINAL INVESTMENT.

3. DEATH TAXES CAN BE REDUCED BY LIFETIME GIFTS OF SHARES OF STOCK WITHOUT SERIOUS RISK TO THE CONTINUITY OF THE BUSINESS.

4. BUSINESS CONTINUITY BEYOND THE DEATH OF THE PRINCIPAL STOCKHOLDER IS POSSIBLE WITH PROPER PLANNING.

5. THE CORPORATION CAN ELECT TO BE TAXED LIKE A PARTNERSHIP, THEREBY AVOIDING FEDERAL INCOME TAX AND STILL ATTAINING CERTAIN ADVANTAGES OF A CORPORATION.

6. SOCIAL SECURITY BENEFITS MAY BE INCREASED BY INCREASED SALARY PAYMENTS.

7. INCOME TAX SAVINGS AND INCREASED RETIREMENT INCOME MAY RESULT TO STOCKHOLDER-EMPLOYEES THROUGH THE USE OF A PENSION OR A PROFIT SHARING PLAN.

8. A DECEASED STOCKHOLDER'S WIDOW CAN BE ASSISTED BY A SALARY CONTINUATION PLAN, PAYMENT OF DEATH BENEFITS, OR PAYMENTS IN PURCHASE OF DECEDENT'S SHARES OF STOCKS.

9. A GUARANTEED MARKET FOR A DECEASED STOCKHOLDER'S SHARES CAN BE CREATED IN THE SURVIVING STOCKHOLDERS OR IN THE CORPORATION.

10. SALE OF SHARES BY A MINORITY STOCKHOLDER NEED NOT DISTURB THE BUSINESS.

11. THE VALUE OF MINORITY INTEREST CAN BE PROTECTED.

12. TRANSFER OF SHARES CAN BE USED FOR SPECIFIC PURPOSES AS:
    - A. INCREASE EMPLOYEE'S OWNERSHIP IN LIEU OF HIGHER WAGES
    - B. INCREASE CHILDREN'S OWNERSHIP TO KEEP THEM INTERESTED IN THE BUSINESS
    - C. MINIMIZE DEATH TAXES
    - D. EQUALIZE ADVANTAGES GIVEN TO CHILDREN
    - E. REPAY SPECIAL FAVORS OF ONE CHILD
    - F. PIECEMEAL SALE TO PROVIDE RETIREMENT INCOME

MISSOURI LAW FOR INTESTATE DESCENT

1. If survivors are the widow or widower and children, one-half of the property is given to the surviving spouse, and the other one-half is divided equally among the children. If one of the children is deceased leaving descendants, such descendants will receive his share of his parent's estate.

2. If the widow or widower survives, but there are no children, parents, brothers, sisters or their descendants surviving, the entire estate goes to the surviving spouse.

3. If there are no children, but widow or widower and parents, brothers, sisters, or their descendants survive, one-half goes to the surviving spouse, with the other one-half being distributed equally among the other relatives listed.

4. If the widow or widower does not survive, but children do, the entire estate is divided equally among the children or their descendants.

5. If no widow, widower, children or their descendants survive, but parents do, the parents share equally with the decedent's brothers, sisters and their descendants.

6. If no widow, widower, descendants or parents survive, but brothers and sisters do, the estate is distributed equally among the brothers and sisters, with children of a deceased brother or sister taking their parent's share.

7. If no widow, widower, descendants, parents, brothers, sisters or their descendants survive, the property is distributed equally among surviving relatives who are of the closest degree of relationship, such as grandparents, aunts, uncles, etc.

8. If there are no surviving relatives, all property in the estate passes to the State of Missouri by escheat.

FUTURE VALUE AT COMPOUND INTEREST

$F.V.=(1+1)^n$

Year	4%	5%	6%	7%	8%	9%	10%
1	1.0400	1.0500	1.0600	1.0700	1.0800	1.0900	1.1000
2	1.0816	1.1025	1.1236	1.1449	1.1664	1.1881	1.2100
3	1.1248	1.1576	1.1910	1.2250	1.2597	1.2950	1.3310
4	1.1698	1.2155	1.2624	1.3107	1.3604	1.4113	1.4641
5	1.2166	1.2762	1.3382	1.4025	1.4693	1.5386	1.6105
6	1.2653	1.3400	1.4185	1.5007	1.5868	1.6771	1.7715
7	1.3159	1.4071	1.5036	1.6058	1.7138	1.8280	1.9487
8	1.3685	1.4774	1.5938	1.7181	1.8509	1.9925	2.1435
9	1.4233	1.5513	1.6894	1.8384	1.9990	2.1718	2.3579
10	1.4802	1.6288	1.7908	1.9671	2.1589	2.3673	2.5937
11	1.5394	1.7103	1.8982	2.1048	2.3316	2.5804	2.8531
12	1.6010	1.7958	2.0121	2.2521	2.5181	2.8126	3.1384
13	1.6650	1.8856	2.1329	2.4098	2.7196	3.0658	3.4522
14	1.7316	1.9799	2.2609	2.5785	2.9371	3.3417	3.7974
15	1.8009	2.0789	2.3965	2.7590	3.1721	3.6424	4.1772
16	1.8729	2.1828	2.5403	2.9521	3.4259	3.9703	4.5949
17	1.9479	2.2920	2.6927	3.1588	3.7000	4.3276	5.0544
18	2.0258	2.4066	2.8543	3.3799	3.9960	4.7171	5.5599
19	2.1068	2.5269	3.0255	3.6165	4.3157	5.1416	6.1139
20	2.1911	2.6532	3.2071	3.8696	4.6609	5.6044	6.7274
21	2.2787	2.7859	3.3995	4.1405	5.0338	6.1088	7.4002
22	2.3699	2.9252	3.6035	4.4304	5.4365	6.6586	8.1402
23	2.4647	3.0715	3.8197	4.7405	5.8714	7.2578	8.9543
24	2.5633	3.2250	4.0489	5.0723	6.3411	7.9110	9.8497
25	2.6658	3.3863	4.2918	5.4274	6.8484	8.6230	10.8347
26	2.7724	3.5556	4.5493	5.8073	7.3963	9.3991	11.9181
27	2.8833	3.7334	4.8223	6.2138	7.9880	10.2450	13.1099
28	2.9987	3.9201	5.1116	6.6488	8.6271	11.1671	14.4209
29	3.1186	4.1161	5.4183	7.1142	9.3172	12.1721	15.8631
30	3.2433	4.3219	5.7434	7.6122	10.0626	13.2676	17.4494
31	3.3731	4.5380	6.0881	8.1451	10.8676	14.4617	19.1943
32	3.5080	4.7649	6.4533	8.7152	11.7370	15.7633	21.1137
33	3.6483	5.0031	6.8405	9.3253	12.6760	17.1820	23.2251
34	3.7943	5.2533	7.2510	9.9781	13.6901	18.7284	25.5476
35	3.9460	5.5160	7.6860	10.6765	14.7853	20.4139	28.1024
36	4.1039	5.7918	8.1472	11.4239	15.9681	22.2512	30.9126
37	4.2680	6.0814	8.6360	12.2236	17.2456	24.2538	34.0039
38	4.4388	6.3854	9.1542	13.0792	18.6252	26.4366	37.4043
39	4.6163	6.7047	9.7035	13.9948	20.1152	28.8160	41.1448
40	4.8010	7.0399	10.2857	14.9744	21.7245	31.4094	45.2592
41	4.9930	7.3919	10.9028	16.0226	23.4624	34.2362	49.7851
42	5.1927	7.7615	11.5570	17.1442	25.3394	37.3175	54.7636
43	5.4004	8.1496	12.2504	18.3443	27.3666	40.6761	60.2400
44	5.6165	8.5571	12.9854	19.6284	29.5559	44.3369	66.2640
45	5.8411	8.9850	13.7646	21.0024	31.9204	48.3272	72.8904
46	6.0748	9.4342	14.5904	22.4726	34.4740	52.6767	80.1795
47	6.3178	9.9059	15.4659	24.0457	37.2320	57.4176	88.1974
48	6.5705	10.4012	16.3938	25.7289	40.2105	62.5852	97.0172
49	6.8333	10.9213	17.3775	27.5299	43.4274	68.2179	106.7189
50	7.1066	11.4673	18.4201	29.4570	46.9016	74.3575	117.3908

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HO-2 (Cont'd)
FBMA III

Year	11%	12%	13%	14%	15%	16%
1	1.1100	1.1200	1.1300	1.1400	1.1500	1.1600
2	1.2321	1.2544	1.2769	1.2996	1.3225	1.3456
3	1.3676	1.4049	1.4428	1.4815	1.5208	1.5608
4	1.5180	1.5735	1.6304	1.6889	1.7490	1.8106
5	1.6850	1.7623	1.8424	1.9254	2.0113	2.1003
6	1.8704	1.9738	2.0819	2.1949	2.3130	2.4363
7	2.0761	2.2106	2.3526	2.5022	2.6600	2.8262
8	2.3045	2.4759	2.6584	2.8525	3.0590	3.2784
9	2.5580	2.7730	3.0040	3.2519	3.5178	3.8029
10	2.8394	3.1058	3.3945	3.7072	4.0455	4.4114
11	3.1517	3.4785	3.8358	4.2262	4.6523	5.1172
12	3.4984	3.8959	4.3345	4.8179	5.3502	5.9360
13	3.8832	4.3634	4.8980	5.4924	6.1527	6.8857
14	4.3104	4.8871	5.5347	6.2613	7.0757	7.9875
15	4.7845	5.4735	6.2542	7.1379	8.1370	9.2655
16	5.3108	6.1303	7.0673	8.1372	9.3576	10.7480
17	5.8950	6.8660	7.9860	9.2764	10.7612	12.4676
18	6.5435	7.6899	9.0242	10.5751	12.3754	14.4625
19	7.2633	8.6127	10.1974	12.0556	14.2317	16.7765
20	8.0623	9.6462	11.5230	13.7434	16.3665	19.4607
21	8.9491	10.8038	13.0210	15.6675	18.8215	22.5744
22	9.9335	12.1003	14.7138	17.8610	21.6447	26.1863
23	11.0262	13.5523	16.6266	20.3615	24.8914	30.3782
24	12.2391	15.1786	18.7880	23.2122	28.6251	35.2364
25	13.5854	17.0000	21.2305	26.4619	32.9189	40.8742
26	15.0798	19.0400	23.9905	30.1665	37.8567	47.4141
27	16.7386	21.3248	27.1092	34.3899	43.5353	55.0003
28	18.5799	23.8838	30.6334	39.2044	50.0656	63.8004
29	20.6236	26.7499	34.6158	44.6931	56.5754	74.0085
30	22.8922	29.9599	39.1158	50.9501	66.2117	85.8498
31	25.4104	33.5551	44.2009	58.0831	76.1435	99.5858
32	28.2055	37.5817	49.9470	66.2148	87.5650	115.5105
33	31.3082	42.0915	56.4402	75.4848	100.6998	134.0027
34	34.7521	47.1425	63.7774	86.0528	115.8047	155.4431
35	38.5748	52.7996	72.0685	98.1001	133.1755	180.3140
36	42.8180	59.1355	81.4374	111.8341	153.1518	209.1643
37	47.5280	66.2318	92.0242	127.4909	176.1246	242.6305
38	52.7561	74.1796	103.9874	145.3397	202.5433	281.4514
39	58.5593	83.0812	117.5057	165.6872	232.9248	326.4837
40	65.0008	93.0509	132.7815	188.8834	267.8635	378.7211
41	72.1509	104.2170	150.0431	215.3271	308.0430	439.3164
42	80.0875	116.7231	169.5487	245.4729	354.2495	509.6071
43	88.8971	130.7299	191.5900	279.8392	407.3869	591.1442
44	98.6758	146.4174	216.4297	319.0166	468.4949	685.7273
45	109.5302	163.9875	244.6413	363.6790	538.7692	795.4437
46	121.5705	183.6661	276.4447	414.5940	619.5845	922.7147
47	134.9522	205.7060	312.3825	472.6372	712.5222	1070.3491
48	149.7969	230.3907	352.9923	538.8064	819.4006	1241.6049
49	166.2746	248.0376	398.8813	614.2393	942.3106	1440.2617
50	184.5648	289.0021	450.7358	700.2328	1083.6573	1670.7035

FARM BUSINESS MANAGEMENT ANALYSIS

UNIT III: Adjusting the Farm Business to Increase Profit

Lesson 2: Planning Income Tax Management

A. Review

The previouw lesson, Law and the Farm Family, should be reviewed. List and/or discuss all conclusions reached at your last meeting. Possible conclusions may have included:

1. Estate planning should be started as soon as real property is owned or when your death can create a hardship on others.
2. Knowing how to hold title to property can help in estate planning.
3. Proper care of children should be a major goal of estate planning.
4. The type of business organization has an impact on the estate planning process.
5. Estate plans should be reviewed periodically and updated.
6.

B. Objective

To understand changes in the tax laws and how a farmer might use tax-saving techniques to maximize after-tax income.

C. Motivation

Tell the enrollees that taxes may be in the same ballpark for farmers as marketing is. Sometimes, we work hard to do a good, efficient job of producing commodities only to give up a fair percentage of the profit margin by doing a mediocre job of marketing them. Likewise, we sometimes work hard and earn profits from the farm business only to pay a good percentage of them back in taxes. For example, a farmer with a taxable income of $12,000 in 1982 would end up in a combined marginal tax bracket of about 35%. (federal income tax - 19%; state income tax - 6%; and social security tax - 9.35%) This would mean that at least 35¢ of each additional dollar of taxable income would be paid in taxes leaving only 65¢ to be used for family living, investments, etc. With this in mind, it seems that it would be important to spend time managing taxes just as we might manage our sow herd to increase production or try to get good weed control at a cheaper rate per acre on a corn crop.

To carry the same example further, ask the enrollees to consider the effects of taxation on increased income. If a farmer nets 25% income on gross sales, he must increase gross sales by $4.00 to net $1.00. If the farmer is in the

50% tax bracket, then 50¢ of the netted dollar is paid in taxes. This means, then, that the farmer gets to keep 50¢ for each $4.00 of gross sales. As one gets into increasingly higher tax brackets, proportionately smaller amounts of the farmer's profits are left in the pocket.

By the same token, however, as one goes into higher tax brackets, the value of each dollar of deductions increases. If you are in the 25% tax bracket, each additional dollar of deduction saves you 25¢ in taxes. If you are in the 50% tax bracket, each additional dollar of deduction saves you 50¢ in taxes.

Also remind the enrollees that tax management is sometimes just as important in years when income is low as when it is high. It is important to keep income at a level where personal exemptions and the zero bracket amount (standard deduction) are used up.

Conclude by telling the enrollees that a good farmer should think and manage taxes in daily decisions and transactions, not necessarily to minimize taxes, but to maximize income over time. The purpose of this session is to study some alternatives that may help in achieving this goal.

D. Key Points

Key points which will be accomplished are as follows:

1. **What are changes in the tax law as a result of the 1981 Act.**
2. **What are some techniques I can use in tax management?**

E. Introduction of Information

Start the introduction of information by telling the enrollees that the lesson is divided into two parts and that the first part will be a discussion of major changes in the tax laws that affect farmers as a result of the Economic Recovery Tax Act of 1981. The second part of the lesson will be looking at some tax situations and techniques that are often encountered and used by farmers.

1. What are changes in the tax law as a result of the 1981 Act?

The tax laws as they relate to farmers underwent major changes as a result of the Economic Recovery Tax Act of 1981. Probably the most sweeping change was the change in the way depreciation is handled. Farmers need to be familiar with these changes and how they may affect day to day decisions in management of the farm business.

a. Show TM-13 and explain to the enrollees that there are basically five areas of change that affect farmers as a result of the 1981 Act. Tell the enrollees that discussion in this lesson will primarily be concerned with individual income taxes and business incentives. Use the following guidelines in your discussion of these points.

(1) Individual income tax provisions - there are 8 areas of change that will affect farmers as individuals. Highlight these 8 areas of change as you show TM-14/HO-3. You may want to give enrollees a copy of HO-3 to refer to as you discuss the various provisions.

(a) Rate cuts - the federal income tax rates will be cut a total of 25% as a result of the Tax Act. They will be cut 5% on October 1, 1981, 10% on July 1, 1982, and 10% on July 1, 1983.

While showing TM-15/HO-3, illustrate the effects of these rate cuts by pointing out that a farmer with taxable income of $16,000 would pay about $2265 federal tax in 1981, but would pay only $1741 in 1984, a decrease of $524. Look at several additional examples to make sure the enrollees understand the table. Point out that the higher the income, the greater will be the effect of the percentage cuts.

As you are looking at the chart, work an example or two of how to figure tax due on incomes by using the percentages in each bracket. For example, ask what tax would be due on a taxable income of $13,350 in 1983? ($1149 + 17% of $13,350 - 11,900 = $1149 + (.14 x $1450) = 1149 + 247 = $1396)

Show TM-14/HO-3 again as you continue discussion.

(b) Lower Maximum Rate - As of January 1, 1982, the maximum rate at which income will be taxed was lowered from 70% to 50%. The highest tax bracket for individuals will be 50%. This can also be shown on TM-15.

(c) Maximum Capital Gains Rate - the maximum rate of tax on capital gains income has lowered from 28% to 20% as of June 9, 1981. Capital gains income can result from the sale of raised or purchased breeding livestock, depreciable machinery, buildings, land, etc.

Show TM-16/HO-3 and explain that only 40% of capital gains income is subject to taxes. For example, if a farmer sells a raised sow that qualifies for capital gains for $180.00, only 40%, or $72.00 is a tax liability. If the farmer was in the highest tax bracket, he would pay $36.00 tax. ($72 x 50%) $36 is 20% of the $180 sale amount.

Capital gains is an important concept for farmers to understand and will be discussed in more detail later.

(d) "Marriage Penalty" Relief - In the situation in which both partners in a marriage are wage earners, there has been an inequitable tax burden in the past. The problem is, for example, that two single wage earners making $11,900 taxable income in 1981 each would have paid $1819 federal income tax or a total of $3593 in taxes. If the same two persons were married and filing a joint taxable income of $23,800 in 1981, they would have a federal tax liability of $4227.

Under the new tax law, couples filing joint returns will recieve tax relief in the form of a deduction of 5% in 1982 and 10% in 1983 and after from the lower earning spouse's gross earned income. This is limited to the lesser of $30,000 or the said spouse's earned income, Thus, the maximum deduction in arriving at adjusted gross income on a joint return is $1500 (5 percent of $30,000) for tax years beginning in 1982 and $3000 (10% of $30,000) for subsequent tax years.

The tax savings for married couples can be substantial, especially for couples that both have good earnings. However, couples making best advantage of this rule are those whose incomes are relatively equal. If the two incomes are in a 50:50 relationship, the relative deduction will be larger than if they are split 80:20. An example of this would be the following: Mr. and Mrs. A. Farmer have gross incomes of $8,000 and $8,000 respectively for a total of $16,000. They could claim a deduction of $400 in 1982 ($8000 x 5%) and $800 ($8000 x 10%) per year thereafter. Mr. and Mrs. B. Farmer have gross incomes of $3200 and $12,800 respectively for a total of $16,000. They can only claim a deduction of $160 in 1982 ($3200 x 5%) and $320 ($3200 x 10%) per year thereafter.

(e) Indexing - after 1984 - beginning in 1985, the tax schedules will be revised annually to prevent "bracket creep". This is being done to prevent the phenomena of increased income being subjected to increased tax rates, thereby substantially reducing the advantage of the higher income. The tax bracket will be adjusted to reflect the change in the Consumer Prices Index for year to year. The Consumer Price Index (CPI) is the measure generally used to chart inflation. The concept here is that as the CPI reflects inflation, the tax brackets will be adjusted to bring them in line so that income adjustments to consumers are "real" and not being eaten up by tax inflation.

(f) Charitable Deductions - beginning in 1982, individuals that do not itemize deductions may deduct a portion of charitable contributions directly from their gross income.

Show TM-17/HO-3 to illustrate the effect fo this new rule. A $500 contribution would net a $25 deduction in 1983 and go up to a full $500 deduction in 1986.

(g) Sale of Principal Residence - The 1981 Act extends the period of time from 1½ years to 2 years in which a taxpayer may sell his/her principal residence, replace it with another, and make a tax-free rollover of the gain realized on the residence that was sold. This rollover is limited to the extent that the purchase price of the new residence equals or exceeds the price of the residence sold. The replacement period begins 2 years before and extends to 2 years after the sale or exchange of the owned property.

The following example illustrates the use of the rule:

A taxpayer sells the existing principal residence for $50,000. The taxpayer's basis in the residence is $30,000. A new principal residence had been purchased 6 months earlier at a cost of $45,000. The total capital gain on the sale of the existing residence was $20,000. ($50,000 - $30,000). Since the purchase of the new residence was $5000 less than the sale price of the existing residence, only this $5000 of the gain is subject to taxes at this time. The remaining $15,000 gain can be deferred since the cost of the new residence exceeded the basis of the existing residence by that amount.

In most cases involving young farmers, they will be buying a residence that will cost more than what they get for their existing home. Therefore, they will usually be able to rollover and defer any gain on the sale of their existing residence.

The act also provides a one-time exclusion of gain for individuals who are 55 years of age or older upon the sale of their principal residence. The maximum exclusion amount is reaised from $100,000 to $125,000 as a result of the 1981 Act. (for married persons filing jointly)

(h) Imputed Interest - After July 1, 1981, if an installment contract does not require at least 9% interest, part of the purchase price will be treated as interest for both the buyer and the seller. The rule is relaxed somewhat for sales of land between family members in that imputation only takes place at interest rates set below 7%. Related persons include spouses, siblings, ancestors, and lineal descendants.

This rule is basically designed to prevent one party from selling property to another on a long term basis and not charging interest on the unpaid balance. The reason a person might want to do this is that a taxpayer in a high tax bracket benefits by receiving income from sale of the property instead of interest, since the income from the property can qualify as capital gains whereas the interest income is counted as ordinary income. For this reason, the seller who is in a high tax bracket wants to keep the sale price high and the interest cost low and a buyer that is in a lower bracket and has less need in the interest deduction is generally agreeable to this arrangement. This is why interest is imputed at the 9% rate for non-relatives and 7% for relatives on the sale of land.

The following is an example of how interest might be imputed: Farmer A sells his son a farm for $100,000. The son is to pay $25,000 down and repay the remaining $75,000 in equal payments over 10 years. The first years payment will $7500. Of the $7500 payment, the IRS will assume an interest charge of $5250. ($75,000 loan balance x 7%) thus the seller is in effect receiving $2250 for land and $5250 for interest on an installment loan.

(2) Business Incentives - there are two major changes in farm business incentives as they relate to taxes brought about by the 1981 Act. One is the new cost recovery system used to replace former depreciation methods used on tangible depreciable property purchased for use in the farm business. The other major change is in the way investment credit is handled.

Use TM-18 as a general overview of the changes as they relate to cost recovery and investment credit. Also give enrollees a copy of HO-4 to refer to as you discuss the various points. Use the following guidelines and examples to aid in your discussion.

(a) Accelerated Cost Recovery System (ACRS) - The Accelerated Cost Recovery System has, for the most part, replaced the Class Life (ADR) System of depreciation for tangible, depreciable property purchased after December 31, 1980. The cost recovery methods and periods are unrelated to the useful life of the assets and are generally shorter than allowed under ADR. The cost recovery methods and periods are the same for both new and used property. Salvage value is disregarded under the new ACRS system.

(1) Classes of Property under ACRS - use TM-19/HO-4 to explain the breakdown on the 4 classes of property under the new ACRS guidelines.

Eligible property is divided into the 3, 5, 10, or 15 year property classes and the cost is then recovered according to the rules for each class.

The 3-year property class includes autos, trucks weighing less than 13,000 pounds empty, and breeding swine.

5-year property includes machinery and equipment, breeding cattle and sheep, single purpose livestock buildings, grain bins, and fences.

Eligible 10-year property might include a manufactured or mobile home that is used by a tenant or rented out.

15 year property includes other depreciable real estate purchased for use in the farm business.

2. Accelerated Cost Recovery Methods - There are two basic cost recovery methods used in the new system. These include the accelerated and straight line methods. The methods and how they are figured are outlined below.

(a) Accelerated Method - the way you can determine how much of the cost to recover each year is to multiply the basis of the item by the statutory percentage in the ACRS table. (TM-20 and 21 and HO-4). As you show TM-20/HO-4, work several examples of how cost may be recovered under the new system. For 3, 5, and 10 year property, use the charts on TM-20/HO-4. For 15 year real property (barn, machine shed, office, etc.), use the table on TM-21/HO-4. For 3, 5, and 10 year property, it makes no difference when the item was purchased during the year, the entire percentage allowable can be recovered. To determine the percentage allowable for 15 year real estate property, you must use the allowable percentage found in the column of the month purchased. You continue then, in future years, using the allowable percentages in that same column.

Examples of using the accelerated method follows:

Farmer A purchased a combine for $15,000 on March 5, 1982. Under ACRS, the combine is in the 5 year property class. The cost recovered the first year will be $15,000 x 15% or $2250. The cost recovered the second year will be $15,000 x 22% or $3300, etc. At the end of 5 years, the total cost of the combine will be recovered.

Farmer B had a machine shed built in June, 1982 at a cost of $6600. Under ACRS, the machine shed is in the 15-year real estate property class. The cost recovery for the first year will be $6600 x 7% or $462. The cost recovered the second year will be $6600 x 11% or $726, etc.

(b) Straight Line Method - Show TM-22/HO-4 as you discuss the straight line methods of cost recovery available.

If you choose to use the straight line cost recovery method, you must first determine, as in the accelerated method, the ACRS property class of the item in question. Then as shown on TM-22/HO-4, you may choose between 3 optional recovery periods for straight line cost recovery within each property class. For example, if you buy a field mower, it is in the 5 year property class. If you want to use the straight line recovery method, you could recover the cost over 5, 12, or 25 years. For 3, 5, and 10 year property, you may take only ½ years recovery the first year. For 15 year real estate property, the first years recovery is pro-rated by the month of purchase. Again, no salvage value is allowed.

Examples of how the alternate straight-line method might be used are as follows:

Using the same example as above, assume that Farmer A purchased a combine for $15,000 on March 5, 1982. Assume also that instead of using ACRS, Farmer A decides to opt for a slower cost recovery and decides to use straight line. Since the combine is in the 5 year property class, he can choose a recovery period of 5, 12, or 25 years. If 12-year straight line is selected, the cost recovered the first year would be $15,000 ÷ 12 = 1250 ÷ 2 (for ½ year) = $625. The cost recovered the second year would be $15,000 ÷ 12 = $1250, etc.

Again, using the same example as above, assume Farmer B had a machine shed built in June, 1982 at a cost of $6600. Again, the shed is in the 15 year property class, but Farmer B decides to use straight line cost recovery. He has the choice of recovering over 15, 35, or 45 years. If he chooses the 15 year recovery period, he would figure the amount to be recovered the first year by dividing $6600 by 15 years and then by 2 (for ½ year). ($6600 ÷ 15 = 440 ÷ 2 = $220.) The amount recovered the second year would be $6600 ÷ 15 = $440.

Work through several examples with the enrollees to make sure they understand these changes. you may have spent plenty of time on these concepts in lessons 5, 6, and 7 in FBMA Unit I. If you have, there would be no point in doing any more than a review of cost recovery here.

As you summarize this section, point out and review the following rules of the new cost recovery system. You may want to jot these down on the chalkboard as you review these.

(1) Salvage value is always zero.

(2) Cost basis = cash difference paid + remaining book value of trade-in minus expensing. (After 1982, the cost basis will be reduced by ½ of the investment credit taken if the taxpayer elects to take a full 10% investment credit on 5 year property or 6% on 3 year property.)

(3) When using the accelerated method, take the percentage shown as allowable for the first year.

(4) When using straight line, take ½ year recovery the first year for 3, 5, and 10 year property. for 15 year property, pro-rate recovery by month of purchase.

(5) Time period for cost recovery is not related to the actual useful life of the asset.

(6) The cost recovery methods and periods are the same for both new and used property.

(7) Within the 3, 5, or 10 year property classes, the same recovery method must be used for all acquisitions made within the tax year. A different method may be used on items in other property classes.

(8) Property owned by a related person in 1980 may not be purchased and qualify as recovery property. It must be depreciated under the depreciation rules in effect before the 1981 Act.

3) Expensing - Before 1981, there was a provision allowing an extra 20% first-year depreciation on tangible personal property having a useful life of six years. This provision is no longer applicable. A new provision called "expensing" is available on tangible personal property, under the new law, beginning in 1982. The property must qualify for cost recovery to qualify for expensing. The amounts that can be expensed each year are outlined on TM-23/HO-4. The expensing option applies only to tangible personal property on which investment credit can be claimed, but if the cost is expensed, no investment credit can be claimed on the amount expensed. A decision to expense must specify the items of property to which the expensing will apply and the portion of each of these items to be deducted currently. The amount expensed is fully deductible in the current tax year. The amounts that can be expensed each year are cut in half for married individuals filing a separate return.

Examples of how expensing might be used are as follows:

As before, assume that Farmer A purchased a combine for $15,000 on March 5, 1982. Farmer A is in an extremely high income situation this year and would like to reduce his tax burden as much as possible so he decides to use expensing in addition to accelerated cost recovery. Therefore, he can expense $5,000 of the combine as a currently deductible expense, leaving the remainder of the cost or $10,000 as the remaining basis for cost recovery. Since the combine is 5 year property, he can recover $10,000 x 15% or $1500 the first year. Thus, he has taken a total of $6500 of the cost of the combine as a deductible expense against his income in 1982 as a result of expensing and cost recovery.

Assume that Farmer B purchased the following items during 1982: 3 portable hog houses at $500 each; 15 new hog feeders at $225 each; a used combine for $3200; and a used manure spreader for $1750. If he decides to expense the allowable $5000 he must decide which equipment will be expensed. For example, it might be logical to expense the smaller items and then use cost recovery on the larger items. Using this idea, he could expense the hog houses at $1500, the hog feeders at $1125, the manure spreader for $1750, and a $625 portion of the combine for a total of $5000. The only thing left then to recover the cost on would be the remaining basis of the combine or $4375 ($5000 - $625.)

Point out to the enrollees that expensing is generally not a wise option for farmers in that you must forego the investment credit that would be allowable on the amount expensed. Taking the investment credit and using cost recovery will generally outweight the advantage of offsetting taxes with expensing. This will be less true after 1982, when taking full investment credit will reduce the basis for cost recovery.

(b) Investment Credit - while refering back to TM-19, explain to the enrollees that basically the same items qualify for the investment tax credit that thave qualified in the past. In general, any depreciable, tangible property that fits into the 3, 5, or 10 year property classes under the ACRS system will qualify for the investment credit. This includes depreciable tangible personal property (including breeding livestock except horses) and other depreciable tangible property if it is: a) used as an integral part of manufacturing or production or b) if it constitutes a research or storage facility used in connection with these activities.

The effect of investment credit is to lower a farmer's tax bill by 10% of the qualified investment. In other words, the investment credit is a credit applied directly to the farmer's tax bill. If the farmer owes no tax in a given year, any investment credit available may be carried back 3 years or carried forward for 15 years.

In order to determine the qualified investment in a piece of property, the property class under ACRS is established. If the asset is in the 3 year property class, 60% of the investment qualifies for investment credit. If the asset is in the 5 or 10 year property class, 100% of the investment qualifies. As stated above, the investment credit is 10% of the qualified investment. The basis for investment credit on purchases involving trade-ins is found by adding the cash difference paid to the remaining book value of the trade-in if the puchase is a new item. If the purchase is a used item, only the cash difference paid qualifies for the investment credit.

(NOTE: After 1982, an election to take the full 6% investment credit on 3 year property or 10% on 5 year property will require a reduction in the basis of the asset for cost recovery by ½ of the investment credit.

The taxpayer will also have the option of taking a reduced investment credit of 4% on 3 year property or 8% on 5 year property and not be required to reduce the basis for cost recovery)

If the asset is disposed of by sale or trade before 3 years on 3 year property or 5 years on 5 or 10 year property, part or all of the credit must be recaptured or paid back. For assets falling into the 5 or 10 year property classes, 20% of the investment credit will be recaptured for each part or full year remaining up to five years from the time the item was placed into service. For assets falling into the 3 year property class, 1/3 of the credit will be recaptured for each part or full year remaining up to 3 years from the time the item was placed into service. This is summarized in the table below:

	The Recaptured percentage is:	
If the asset is disposed of during the following time period after being placed in service:	For 5 and 10 year Property	For 3 year Property
0 - 1 years	100%	100%
1 - 2 years	80	66
2 - 3 years	60	33
3 - 4 years	40	0
4 - 5 years	20	0

Examples of how investment credit might be used are as follows:

Assume again that farmer A purchased a combine on March 5, 1982 for $15,000. If he decides not to use expensing, the entire $15,000 will be basis for the investment credit. Since a combine is 5 year property, 100% of the investment qualifies. Therefore he would simply take $15,000 x 100% = $15,000 qualified investment x 10% = $1500 investment credit. If A decides to use expensing on the combine and expenses $5,000 of the purchase, this would lower the basis for investment credit from $15,000 to $10,000, leaving an investment credit of $1000. ($10,000 x 10%)

Farmer Sue traded her old 5000 tractor in for a new 6610 tractor in 1982. The list price on the 6610 was $18,500. Sue traded the old tractor and paid a cash difference of $10,500. The remaining book value on the 5000 tractor was $2000. Assume no expensing. Since the 6610 is a new tractor, the basis for investment credit is found by adding cash difference paid to the remaining book value of the old tractor.

($10,500 + $2000 = $12,500). The investment credit allowable then will be $12,500 x 10% or $1250. If the 6610 tractor would have been used instead of new, only the cash difference paid would qualify as basis for the credit leaving a credit of only $1050 ($10,500 x 10% = $1050) If Sue trades or sells the 6610 tractor after 3 years, she will have to recapture 40% of the investment credit taken or $500, ($1250 x 40% = $500.)

2. **What are some techniques I can use in tax management?**

Several income tax provisions and concepts have special application for farmers and it is important to be familiar with examples of how they might be of importance to farmers in easing the tax burden over time. The main idea in this part of the lesson is not to deal so much with the mechanics of the tax rules and law, but to look generally at various tax provisions and see how they can be used to benefit.

a. As you look at each tax concept with the enrollees, point out that we are discussing in generalizations and that it is impossible to know and explore all of the ins and outs of taxes in one hour-and-a-half session and that tax decisions should not be made without consulting a tax publication that will include all rules and regulations relating to the concept.

Use the following points and guidelines of each concept as you look at them with the enrollees. Try to relate some practical examples that you know of and ask the enrollees to relate examples that will help to illustrate each concept and how it might be used.

(1) Itemizing Deductions - Many farmers will not be able to itemize deductions on their tax returns for any advantage. However, if itemized deductions exceed the zero bracket amount ($3400 for married filing jointly), it pays to itemize.

Situations in which you might be able to itemize deductions might include: high interest payments and property taxes on a personal residence, making large charitable contributions, or unusually large medical expenses during the year.

Give the enrollees a copy of HO-5, Itemizing Checklist, and review both the items that are deductible and those not deductible when itemizing. Then figure a couple of examples of the board, using realistic figures demonstrating how and when itemizing will work.

(2) Capital Gains and Losses - As pointed out earlier in the lesson, the maximum tax rate on capital gains income is now 20% as a result of the 1981 Act. Only 40% of qualified gains are subject to tax and the highest tax bracket is now 50% so that 40% x 50% = 20% maximum rate on capital gains.

In general, items that qualify for capital gains treatment when sold include: land or property of a character subject to depreciation (machinery and equipment, buildings, breeding livestock, etc.). In order to qualify for capital gains treatment, assets must be held for more than one year except in the case of cattle and horses which must be kept for two years. It is also important to note that sales of some items might qualify even though they were not depreciated. They simply must have been subject to depreciation. In the past, breeding livestock was often not depreciated as was also the case with many shop tools and smaller depreciable items.

The gain or loss on property sold is computed by determining the difference between the cost (or other basis) of the property and the amount received. For example, if a farmer buys a bull for $500 and uses him in the breeding herd for 3 years and then sells him for $730, the capital gain on the bull is $230. If the farmer had depreciated the bull down to $250, there would have been a $350 ordinary gain and a $230 capital gain. The capital gain on raised livestock is simply the amount received. For example, if a farmer sells raised sows that have been used in the breeding herd for more than one year, the entire amount received is considered a capital gain and taxed as such.

It is also significant that social security taxes are not charged on capital gains income.

Another important consideration in selling capital items is in handling capital losses. If a farmer receives less than the cost or basis of the qualifying property when selling, a capital loss is realized. Only 50% of long term capital losses may be used to offset ordinary income. This reduces the effect of the loss on a farmer's bill and makes capital losses especially undesirable.

Work through several examples of how capital gains income is figured and why this concept is important to farmers.

(3) ACRS (Accelerated Cost Recovery System) - Tell the enrollees that earlier in the lesson we talked about how to recover the cost of property under the new ACRS system. We outlined the various options for recovering the cost of items in each question: How do I determine which methods and life to use? The following ideas might help in determining this.

In the past, it has usually paid to depreciate property at as fast a rate as was legal as long as you could use the expense without going below the zero bracket amount. This will probably remain true under ACRS unless a farmer is in a very low income situation and figures to be that way for several years.

One of the disadvantages of using longer cost recovery periods is that you may sell the asset in the early years of the recovery period and may experience a capital loss since your basis in the property is still high. The effects of inflation also eat away at cost recovery dollars that are shoved into future years, thus, in general making it more profitable to recover the cost as quickly as possible. It is important to remember also that a combine and a cow fit into the same recovery period and if you select the straight-line method - 12 years for the combine, you are also selecting it for the cow.

Discuss with the enrollees situations in which they might want to use longer recovery periods.

(4) Expensing

Remind the enrollees that expensing affects the basis for cost recovery and investment credit and that a farmer should consider several things before selecting to use expensing.

The basic question in whether or not to expense is in deciding whether the advantages of expensing can offset the disadvantage of losing the investment credit. In other words, is the option to expense $5000 this year in order to speed up cost recovery worth more than the $500 investment credit it would yield if recovered under the accelerated or straight line methods? Probably not in most cases.

Give enrollees a copy of HO-6, Breakeven Tax Rates for electing to Expense and review the tax brackets a farmer would need to be in to benefit from expensing. By examining the table, it appears that expensing will not be an option for most farmers, unless they are in high tax brackets or do not hold the property long enough to use the investment credit available on it.

(5) Income Averaging

It is generally to the taxpayer's advantage to maintain a fairly level income from year to year in order to stay in a moderate income tax bracket instead of being in a low bracket one year and an extremely high bracket the next. Sometimes though, for various reasons, a taxpayer may have unusually high or low income and may be able to save some tax by using income averaging.

Basically, for income averaging to be of value, your income must be $3000 greater than 120% of the average base period years income. The base period includes the taxable income from the four years prior. You must have provided more than 50% of your own support and must have had four years of base period income to qualify.

As you can see, the change in income would have to be fairly dramatic for averaging to work. For example, if your base period income was $12,000 average for four years, you would have to have a taxable income of $17,400 or more for income averaging to make any difference, ($12,000 x 120% = $14,400 + $3,000 = $17,400).

Work through an example or two with the enrollees and discuss situations in which averaging might work. For most farmers, averaging should not be necessary, since there are so many ways to increase or delay income. Good tax planning in November and December to adjust income levels will be much superior to using income averaging after the fact.

(6) Zero Bracket Amount

The zero bracket amount is, in effect, a standard deduction dependent upon a taxpayer's filing status that has been built into the tax tables and tax schedules. Have enrollees refer back to TM-15/HO-3, the tax tables and point out that the zero bracket amount for married couples filing jointly is $3400 (in 1981), for unmarried individuals it is $2300, etc. This "standard deduction" or zero bracket amount is wasted if a taxpayer does not have at least $3400 (in the case of married filing jointly) of taxable income. To not be able to use this zero bracket amount would be no different than foregetting to include a $3400 feed expense. Therefore, it is important for young farmers who are in fairly low income situations to keep their taxable income high enough to make use of the zero bracket amount. They should also try to make use of the $1000 exemption allowed themselves and each dependent.

b. Give enrollees the sample problems, HO-7, and work through them to assist in understanding the concepts presented in this lesson.

F. Group Discussion

Sufficient time should be given to discuss questions that arise out of the lesson. You need to visit about the fact that tax management is a job that extends throughout the year and that farmers are in a better position than most employed persons to manage their taxable income.

G. Conclusions

Conclusions which may be reached include:

1. Farmers with at least a moderate amount of taxable income should use the accelerated method of cost recovery instead of straight line.
2. Expensing will probably not be a viable option for most farmers unless they are in a high tax situation.
3. Farmers should generally be able to manage their taxable income well enough with planning to avoid using income averaging (Schedule G).
4. Farmers should be aware of the zero bracket amount and be sure they do not lose it.
5.
6.

Announcements

Social

On-the-Farm Instruction

When visiting enrollees following this lesson, the discussion should center on how to minimize taxes at the end of this year. Run the TAXMGT program on Missouri's Remote Computer Planning System (or send it to Ag. Ed. to run for each enrollee and then work with each one in looking at tax alternatives). The opportunity to adjust income before the end of the year needs to be considered and planned. Do not forget to explore the alternatives in terms of itemizing deductions, using accelerated or straight line cost recovery, using expensing, etc. in each enrollees tax situation.

Materials Needed

Instructor

TM-13: Five Areas of Change That Affect Farmer
TM-14: Individual Income Tax Provisions
TM-15: Tax Rate Schedules
TM-16: Capital Gains
TM-17: Charitable Deductions
TM-18: Business Incentives
TM-19: Accelerated Cost Recovery System (Property Classes)
TM-20: Accelerated Cost Recovery Method (Percentages)
TM-21: ACRS Cost Recovery Tables for Real Estate
TM-22: Straight Line Cost Recovery Method
TM-23: Election to Expense
Farmers Tax Guide
Master Tax Guide

Student

HO-3: Individual Income Tax Provisions
HO-4: Business Incentives
HO-5: Itemizing Checklist
HO-6: Breadeven tax rates for expensing
HO-7: Sample Problems - Taxes
Missouri Farm Business Analysis Record Book
Prior year's Farm Record Analysis

FIVE AREAS OF CHANGE THAT AFFECT FARMERS

- I. INDIVIDUAL INCOME TAXES
- II. BUSINESS INCENTIVES
- III. CORPORATIONS
- IV. SAVINGS
- V. ESTATE AND GIFT TAXES

I. INDIVIDUAL INCOME TAX PROVISIONS

A. RATE CUTS

5% OCTOBER 1, 1981

10% JULY 1, 1982

10% JULY 1, 1983

B. LOWER MAXIMUM RATE

70% TO 50% JANUARY 1, 1982

C. MAXIMUM CAPITAL GAINS RATE

28% TO 20% JUNE 9, 1981

D. "MARRIAGE PENALTY" RELIEF

E. INDEXING - AFTER 1984

F. CHARITABLE DEDUCTIONS

G. SALE OF PRINCIPAL RESIDENCE

1. 1½ TO 2 YEARS DEFERRAL
2. $100,000 TO $125,000 EXCLUSION

H. IMPUTED INTEREST

1. 9% NON-RELATIVES
2. 7% RELATIVES

TAX RATE SCHEDULES FOR MARRIED INDIVIDUALS FILING JOINT RETURNS AND SURVIVING SPOUSES

	1981*		1982		1983		1984	
Taxable Income	Pay +	% on Excess**	Pay +	% on Excess**	Pay +	% on Excess**	Pay +	% on Excess**
$ 0- 3,400	$ 0	0	$ 0	0	$ 0	0	$ 0	0
3,400- 5,500	0	14	0	12	0	11	0	11
5,500- 7,600	294	16	252	14	231	13	231	12
7,600- 11,900	630	18	546	16	504	15	483	14
11,900- 16,000	1,404	21	1,234	19	1,149	17	1,085	[illegible]
16,000- 20,200	2,265	24	2,013	22	1,846	19	1,741	[illegible]
20,200- 24,600	3,273	28	2,937	25	2,644	23	2,497	22
24,600- 29,900	4,505	32	4,037	29	3,656	26	3,465	25
29,900- 35,200	6,201	37	5,574	33	5,034	30	4,790	28
35,200- 45,800	8,162	43	7,323	39	6,624	35	6,274	33
45,800- 60,000	12,720	49	11,457	44	10,334	40	9,772	38
60,000- 85,600	19,678	54	17,705	49	16,014	44	15,168	42
85,600-109,400	33,502	59	30,249	50	27,278	48	25,920	45
109,400-162,400	47,544	64	42,149	50	38,702	50	35,630	49
162,400-215,400	81,464	68	68,649	50	65,202	50	62,600	50
215,400-.......	117,504	70	95,149	50	91,702	50	89,100	50

*The CCH-prepared rate schedule shown above for 1981 is the same rate schedule that applied for 1980 taxes. A taxpayer may use this schedule to find the approximate taxes due for 1981 by computing the tax under the schedule and reducing the result by 1.25%. The IRS is expected to issue an official 1981 rate schedule that will incorporate the 1981 1.25% tax cut.

**The amount by which the taxpayer's taxable income exceeds the base of the bracket.

CAPITAL GAINS

60% OF LONG-TERM CAPITAL GAINS IS EXEMPT FROM TAXATION

40% IS TAXABLE

	1980	1982
MAXIMUM TAX RATE	70%	50%
TIMES PERCENT TAXABLE	x 40%	x 40%
EQUALS MAXIMUM TAX RATE	28%	20%

LOWER MAXIMUM TAX RATE IS EFFECTIVE ON SALES MADE AFTER JUNE 9, 1981.

CHARITABLE DEDUCTIONS FOR NON-ITEMIZERS

YEAR	
1982	25% OF FIRST $100 OF CONTRIBUTIONS
1983	25% OF FIRST $100 OF CONTRIBUTIONS
1984	25% OF FIRST $300 OF CONTRIBUTIONS
1985	50% OF ALL CONTRIBUTIONS
1986	100% OF ALL CONTRIBUTIONS
1987	LAW EXPIRES

II. BUSINESS INCENTIVES

A. ACCELERATED COST RECOVERY SYSTEM

  1. REPLACES DEPRECIATION

    A. ITEMS PURCHASED BEFORE 1/1/81 YOU DEPRECIATE

    B. ITEMS PURCHASED AFTER 12/31/80 YOU RECOVER COST

  2. CLASSES OF PROPERTY

    A. 3 YEAR

    B. 5 YEAR

    C. 10 YEAR

    D. 15 YEAR

  3. COST RECOVERY METHODS

    A. ACCELERATED

    B. STRAIGHT LINE

  4. EXPENSING

B. INVESTMENT CREDIT

  1. 6% ON 3 YEAR PROPERTY (MAY ELECT 4% OPTION AFTER 1982)

  2. 10% ON OTHER ELIGIBLE PROPERTY (MAY ELECT 8% OPTION AFTER 1982)

TM-19
HO-4
FBMA III

ACCELERATED COST RECOVERY SYSTEM

CLASSES OF PROPERTY

3 YEAR PROPERTY - CARS, LIGHT TRUCKS (EMPTY TRUCK <13,000#), SWINE

5 YEAR PROPERTY - MACHINERY, EQUIPMENT, CATTLE, SHEEP, SINGLE PURPOSE LIVESTOCK BUILDINGS, GRAIN BINS, FENCES

10 YEAR PROPERTY - MOBILE HOME (FOR TENANTS, RENTALS)

15 YEAR PROPERTY - OTHER DEPRECIABLE REAL ESTATE

ACCELERATED COST RECOVERY METHOD

FOR PROPERTY PLACED IN SERVICE, AFTER 1980

	THE APPLICABLE PERCENTAGE FOR THE CLASS OF PROPERTY IS:		
IF THE RECOVERY YEAR IS:	3-YEAR	5-YEAR	10-YEAR
1	25	15	8
2	38	22	14
3	37	21	12
4		21	10
5		21	10
6			10
7			9
8			9
9			9
10			9

ACRS Cost Recovery Tables for Real Estate

(15 year property)

(Except Low-Income Housing)

The applicable percentage is:
(Use the Column for the Month in the First Year
the Property is Placed in Service)

Recovery Year	Month											
	1	2	3	4	5	6	7	8	9	10	11	12
1	12	11	10	9	8	7	6	5	4	3	2	1
2	10	10	11	11	11	11	11	11	11	11	11	12
3	9	9	9	9	10	10	10	10	10	10	10	10
4	8	8	8	8	8	8	9	9	9	9	9	9
5	7	7	7	7	7	7	8	8	8	8	8	8
6	6	6	6	6	7	7	7	7	7	7	7	7
7	6	6	6	6	6	6	6	6	6	6	6	6
8	6	6	6	6	6	6	5	6	6	6	6	6
9	6	6	6	6	5	6	5	5	5	6	6	6
10	5	6	5	6	5	5	5	5	5	5	6	5
11	5	5	5	5	5	5	5	5	5	5	5	5
12	5	5	5	5	5	5	5	5	5	5	5	5
13	5	5	5	5	5	5	5	5	5	5	5	5
14	5	5	5	5	5	5	5	5	5	5	5	5
15	5	5	5	5	5	5	5	5	5	5	5	5
16			1	1	2	2	3	3	4	4	4	5

(Note: This table does not apply for short taxable years of less than 12 months.)

STRAIGHT LINE COST RECOVERY METHOD

PROPERTY CLASS	OPTIONAL RECOVERY PERIODS
3 YEAR	3, 5, 12 YEARS
5 YEAR	5, 12, 25 YEARS
10 YEAR	15, 35, 45 YEARS
15 YEAR	15, 35,45 YEARS

SALVAGE VALUE IS ALWAYS ZERO.

COST BASIS = CASH + BOOK VALUE OF TRADE-IN MINUS EXPENSING.

FOR 3, 5, OR 10 YEAR PROPERTY, TAKE ½ YEAR RECOVERY FIRST YEAR.

FOR 15 YEAR PROPERTY, PRO-RATE FIRST YEAR RECOVERY BY MONTH OF PURCHASE.

AFTER 1982, THE COST BASIS WILL BE REDUCED BY 1/2 OF THE INVESTMENT CREDIT TAKEN UNLESS THE TAXPAYER OPTS FOR A REDUCED INVESTMENT CREDIT. (REDUCED BY 2%)

ELECTION TO EXPENSE

TAXABLE YEAR BEGINNING IN	MAXIMUM AMOUNT EXPENSED
1981	$ 0
1982	5,000
1983	5,000
1984	7,500
1985	7,500
1986 OR LATER	10,000

ITEMIZING CHECKLIST

"Personal" Deductions on Schedule A (Form 1040)

Deductible Only if Deductions are Itemized:

Carrying charges on installment purchases (limited amount representing interest)

Casualty losses on nonbusiness property

Clothing (special) required by job

Collection fees on dividends, bond interest, etc.

Contributions to charity (cash, property or unreimbursed expenses) (can include expenses for care of students in home under organized plan, $50 monthly maximum)

Education expense to hold position or to maintain or improve needed skills (expenses for travel, meals, and lodging)

Employment agency fees

Expenses in earning taxable income

Expenses in excess of reimbursement or allowance by employer (mileage, etc.)

Interest paid on mortgage, loan, etc.

Investor's expenses

Labor union dues

Losses, nonbusiness

Medical, dental, hospital expenses subject to limitations

Safe deposit box for investments

Summer school expense, teachers

Tax returns, nonbusiness

Taxes--income, state, and local

Personal property taxes

Real property taxes

Sales (paid by consumer) and use

Unemployment and/or mandatory contributions by employers to state disability funds

Tools (life of one year or less), employees

Uniforms, cost and cleaning, if not adaptable for general wear, to the extent not reimbursed

"Personal"-Type Items Which are Not Deductible:

- Attorneys' fees:
  - Breach of promise
  - Defending incompetency suit
  - Divorce or separate maintenance
  - Establishing right to hold public office
  - Preparation of will
  - Prosecuting a personal slander suit
- Automobile upkeep, pleasure car
- Campaign expenses of candidates
- Capital expenditures
- Commuting expenses
- Depreciation, property held for personal use
- Domestic servants, except as child care
- Dues, social club
- Employee's insurance, amount deducted from salary
- Fines for violation of law
- Funeral expenses
- Gifts to individuals
- House rent
- Insurance on residence or contents
- Life insurance premiums
- Nursemaid for children of employed parents, except as child care
- Repairs to personal residence
- Safe deposit box rental for personal effects
- Special courses or training to *obtain* position or advancement
- Traveling:
  - Between home and business
  - In search of employment
  - Nonbusiness

Table 1

BREAKEVEN TAX RATES FOR ELECTING TO EXPENSE ASSUMING CONSTANT TAX RATE AND CONSTANT DISCOUNT RATE[a]

Discount Rate	Tax Rate	
	3 Year Property	5 Year Property
0%	----	----
5	109%	99%
8	69	64
10	55	52
13	43	41
15	38	37
20	29	29
25	23	24
30	20	21

[a] Expensing is advantageous if the taxpayer is in a tax bracket greater than that given in the table.

Table 2

BREAKEVEN TAX RATES FOR ELECTING TO EXPENSE ASSUMING A 50% TAX RATE FOR THE FIRST YEAR, A CONSTANT TAX RATE FOR LATER YEARS, AND A CONSTANT DISCOUNT RATE[a]

Discount Rate	Tax Rate in Later Years	
	3 Year Property	5 Year Property
0%	42%	38%
5	45	43
10	49	49
13	52	53
15	53	56
20	58	64
25	64	74
30	70	86

[a] Expensing is advantageous if the taxpayer will be in a tax bracket lower than that given in the table.

Ron Plain, UMC

SAMPLE PROBLEMS - TAXES

1. J. Farmer bought 3 new hog feeders on May 5, 1982. He paid $275 each for the feeders. Assume no expensing.

   a. How much cost can be recovered on the feeders the first year using the accelerated method?

   b. How much investment credit can be claimed on the feeders?

2. T. Farmer traded in an old combine for a newer used combine in good condition on September 5, 1982. The dealer was asking $22,000 outright for the combine, but T. Farmer traded in the old machine and paid $17,000 cash difference. The book value of the old combine was $3000. Assume no expensing.

   a. What is the basis for cost recovery on the newer machine?

   b. How much cost would be recovered the first year using the accelerated method?

   c. How much would be recovered if using 5 year straight line?

   d. How much investment credit can be claimed on the trade?

3. Assume the same information as in the problem above, (#2), except that the combine traded for was new instead of used.

   a. What is the basis for cost recovery on the new machine?

   b. How much investment credit can be claimed on the trade?

   c. If T. Farmer would decide to expense $5000 of the cash difference paid, what would the basis for cost recovery be?

   d. Again, after expensing $5,000, how much investment credit could be claimed on the trade.

4. C. Farmer built a machine shed in August, 1982 at a total cost of $14,500. Assume no expensing.

   a. How much cost can be recovered the first year using the accelerated method?

   b. How much investment credit can be claimed on the building?

5. D. Farmer sold 10 cows on September 15, 1982 that had been purchased in 1974 at a cost of $250 each. Salvage value had been set at $125 each on the cows and they have been depreciated to that amount. Farmer received $372 each for the cows.

   a. What would be the ordinary gain on the sale of the cows?

   b. What would be the capital gains income on the sale of the cows?

   c. How much of the total income from the cows will be subject to tax?

   d. If the cows had been raised instead of purchased, what would be the capital gains income on the sale?

   e. In that case, how much income will be subject to tax?

6. L. Farmer had a taxable income of $19,630 in 1982. This was considerably higher than in previous years and Farmer thinks income averaging might reduce tax load. His taxable income in 1978 was $6100, in 1979 was $9400, in 1980 was $3550, in 1981 was $14,600.

   a. What was Farmer's average income during the four base period years?

   b. Will income averaging help Farmer in 1982?

7. Mr. & Mrs. P. Farmer had a taxable income of $1550 for year one and a taxable income of $21,000 for year two. Assume that income averaging will not work. Use current tax tables to answer questions. (married filing jointly)

   a. What would Farmers federal income tax be in year one?

   b. What would it be for year two?

   c. What would Farmer's tax bill for the two years be if taxable income was $11,275 each year instead of the uneven split?

ANSWERS TO SAMPLE PROBLEMS
(Answers Can Change After 1982)

1. a. $275 x 3 = $825 x 15% = $124
   b. $825 x 100% = 825 x 10% = $82.50

2. a. $17,000 + $3,000 = $20,000
   b. $20,000 x 15% = $3,000
   c. $20,000 ÷ 5 yrs = $4,000 x 1/2 yr. = $2,000
   d. $17,000 x 100% = $17,000 x 10% = $1,700

3. a. $17,000 + $3,000 = $20,000
   b. $20,000 x 100% = $20,000 x 10% = $2,000
   c. $17,000 - $5,000 expensed = $12,000 + $3,000 = $15,000
   d. $15,000 x 100% = $15,000 x 10% = $1,500

4. a. $14,500 x 5% = $725 (percentage will change in future years)
   b. None on a machine shed.

5. a. $250 - $125 = $125 x 10 = $1,250
   b. $372 - $250 = $122 x 10 = $1,220
   c. $1,250 ordinary income + $488 (1220 x .40%) = $1,738
   d. $372 x 10 = $3,720
   e. $3720 x .40% = $1,488

6. a. $6,100 + $9,400 + $3,550 + $14,600 = $33,650 ÷ 4 = $8,413
   b. Yes -- $8,413 x 120% = $10,094 + $3,000 = $13,094 which is less than the 1982 income of $19,630.

7. a. $0 (using 1981 Tax Tables)
   b. $3,497
   c. $2,584

FARM BUSINESS MANAGEMENT ANALYSIS

Unit III: Adjusting the Farm Business to Increase Profit

Lesson 3: Closing the Record Book and Planning Cash Flow

A. Review

The previous lesson, Planning Income Tax Management, should be reviewed. List all conclusions reached at your last meeting. Possible conclusions may have included:

1. Farmers with at least a moderate amount of taxable income should use the accelerated method of cost recovery instead of straight line.
2. Expensing will probably not be a viable option for most farmers unless they are in a high tax situation.
3. Farmers should generally be able to manage their taxable income well enough with planning to avoid using income averaging. (Schedule G.)
4. Farmers should be aware of the zero bracket amount and be sure they do not lose it.
5.

B. Objective

To be able to properly summarize and complete the record book at the end of the year for computer analysis and plan a cash flow for next year.

C. Motivation

1. Point out to the group that during the year they have worked hard to get receipts and expenditures recorded correctly. They have kept Form 27 - Summary and Enterprise Forms 31, 32, and 33 up-to-date monthly. Explain to them that none of that work will be worth anything unless the figures are totaled, checked, and cross-checked accurately on all of the summary forms so that a meaningful end-of-the-year analysis of the farm business can be done.

   As an example, you might relate an experience in which you or a farmer has completed the Form 27 - Summary only to find an error back in the expenditures section. In this case, all you can do is go back and correct all figures affected by the error. The further you go in completing the book, the harder it is to correct any error that may be made.

2. Administer the accompanying quiz, HO-8, as a motivating experience for enrollees. Discuss each item.

3. Explain to the enrollees that now is the time to begin looking ahead to next year in terms of cash flow planning. Make the point that as we do a better job of keeping records, we have a better feel for what we have done and we have some quidelines which we can use to plan more accurately for the future.

D. Key Points

Key points which will be accomplished are as follows:

1. **How are expenses and receipts on Form 27 totaled and cross-checked for summary and analysis?**

2. **How is enterprise Form 31 totaled and cross-checked?**

3. **How are enterprise Forms 32 and 33 totaled and cross-checked?**

4. **How are forms 34 and 35 updated?**

5. **How can I use the figures from this year's records summary to help in cash flow planning?**

E. Introduction of Information

Start the introduction of information by explaining to the enrollees that the main part of the lesson will be dsicussing how to summarize and complete each form. To help understand, we will use sample situations from previous lessons to aid in the discussion.

1. **How are expenses and receipts on Form 27 totaled and cross-checked for summary and analysis?**

   Form 27 - Summary is the first form to be totaled and checked at the end of the year. It is a must that the figures on Form 27 are correct, since most of the figures for income tax preparation come directly from it.

   a. Give enrollees a copy of TM-24/HO-9 to use in the discussion. You might note that this is the same example used in FBMA II, Lesson 2, except that here the figures for December have been added. Use TM-24 in helping explain the procedures for completing the form. Tell the enrollees that basically three things need to be done when completing the Form 27. First, you must make sure that all figures to be entered on Form 27 from other forms are be accurate and have been transferred properly. Second, the totals should be run and cross-checked, and third, the figures should be balanced to be sure that no figures were left off. Guidelines for checking and completing Form 27 are as follows:

      1) Make sure monthly totals have been transferred to Form 27 from Forms 2-5, 7-10, and the Family Living Section, Forms 24 and 25 for all months.

2) Run totals on all columns and make sure figures on total lines A through H are correct.

3) Total each line across and write the line total in the total column at the right.

4) Make the following cross-checks:

   a) Line A totals, January through December = totals of lines 1 through 13.

   b) Line B totals, January through December = totals of lines 14 through 17.

   c) Line C totals, January through December = totals of lines A plus B.

   d) Line D totals, January through December = totals of line C plus lines 18 and 19.

   e) Line E totals, January through December = totals of lines 20 - 41.

   f) Line F totals, January through December = totals of lines 42-45.

   g) Line G totals, January through December = totals of lines E and F.

   h) Line FL totals = totals of Forms 24 and 25 from Family Living Section for each month.

   i) Line H totals, January through December = totals of Lines G through FL.

5) Check completeness of entries (whether or not all receipts, expenses, etc., were entered in the record book):

   a) If one checking account is used for farm and family, then -

      (1) If money borrowed (line 18); non-farm receipts, including items such as non-farm salaries, sale of C.D.s, etc. (line 19); principal paid (line 46); non-farm expenses and investments including items such as retained patronage allocations, purchase of C.D.'s, etc. (line 47); and, Family Living including social security, income tax, purchase of family capital items, and other family living expenses, are entered (and they should be) - then, the cash balance beginning of year (line J - January) plus or minus Cash Difference for year (line I - Total Column) should equal Cash Balance end of year (line N -December).

(2) In almost every case, there will be a difference due to omissions of some entries - maybe all in family living. Check first for omissions of money borrowed, principal paid, non-farm income or expense. If these are correct, move on. If the family living was estimated, ask the enrollee if that figure plus or minus the difference in 1) above would be realistic for family living. If the answer is yes, assume the entries on Form 27 are correct and proceed. If the answer is no, check for a missing entry. If the answer is no, check for a missing entry. If a receipt, check deposit slips against entries. If an expense, check cancelled checks against entries. It is a judgment factor on how much difference to accept before proceeding. It could be pointed out to the enrollee that if it appears $3,000 expenses are missing and the family is in the 30% tax bracket, the extra taxes will be $900. This would justify spending some time finding the error. If the enrollee owes no tax and the error is relatively small, move on. If the family living was recorded, there still could be an error in it. However, if the enrollee is confident of this figure, proceed with the other steps outlined above.

b. Have enrollees complete the sample cash flow you have given them for the year as they would do in their own records. Have them use the procedures outlined above for adding and cross-checking. When they have all finished, have enrollees compare figures and discuss any problems encountered. Use the completed sample Form 27 on the following pages to aid in your discussion.

2. **How is enterprise Form 31 totaled and cross-checked?**

Give enrollees a copy of TM-25/HO-10. At the end of the year, each enrollee with a livestock enterprise should have one or more Form 31's completed for the year's analysis of the enterprise. They should have figures entered for all appropriate months. This should be a fairly simple task if the form has been kept up to date monthly. Show TM-25/HO-10 and have enrollees follow on the handout as you discuss the following guidelines in totaling and cross-checking Form 31 for the year.

a. Complete line A by totaling Columns 1 through 15.

b. Complete line B by totaling Columns 23 through 29.

c. Balance numbers of livestock in order to be sure that all livestock in the enterprise are accounted for in this record book. January breeding numbers on this form should agree with last year's closing inventory and December numbers should agree with this year's closing inventory. Use the following formula in balancing livestock numbers.

FORM 27 **CASH FLOW** **FINANCIAL PLAN OR SUMMARY**

	LINE	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG	SEPT.	OCT.	NOV.	DEC.	TOTAL
RECEIPTS														
Crop Sales Wheat	1						1715							1715
Fescue Seed	2						3124							3124
	3													
	4													
Gov't Payments	5													
Custom Work	6							2411						2411
Dividends, Refunds, Resales	7													
Cash Rent, Other Farm	8													
Non-Brdg Livestock Sales	9													
Cattle	10									36828	3105			39933
Hogs	11	4163	7493	3794	7188	3938	6970	4600	7910	4490	7898	4400	7800	70644
Livestock Products	12													
	13													
OPERATING SALES TOTAL (add lines 1 through 13)	A	4163	7493	3794	7188	3938	11809	7011	7910	41318	11003	4400	7800	117827
Breeding Livestock Sales	14													
Hogs	15			1894			1911			243		2050		6098
	16													
Mach., Equip., Bldgs. Sold	17													
CAPITAL SALES TOTAL (add lines 14 through 17)	B			1894			1911			243		2050		6098
TOTAL FARM RECEIPTS (line A plus B)	C	4163	7493	5688	7188	3938	13720	7011	7910	41561	11063	6450	7800	123925
MONEY BORROWED summary only	18		1500								13000	5500		20000
NON-FARM RECEIPTS	19	87	83	87	87	87	87	87	87	87	87	87	25900	26853
TOTAL DOLLARS AVAILABLE	D	4250	9076	5775	7275	4025	13807	7098	7997	41648	24090	12037	33700	170778
EXPENDITURES														
Feed	20	2412	2615	2211	2275	2304	2310	2105	2475	2280	26275	2411	3200	52873
Vet., Med	21		122	75	30	40	71	110		30			75	553
Breeding Fees, Registr.	22													
Fertilizer, Lime	23		210				910				280		2100	3500
Crop Chemicals	24						130							130
Seeds, Crop Supplies	25		113				78							191
Machinery Repair, Maint.	26	122		50	85		412		65	50			110	894
Building, Fence Repair	27		150		322		74		71	65	141	128		951
Machinery, Truck Hire	28													

Power Fuel, Oil, Grease	30	140	175	160	275	240	200	428	170	270	135	140	150	2483
Hired Labor	31													
Insurance	32				420					220				640
Taxes	33												730	730
Utilities	34	161	148	175	135	138	163	160	152	140	150	140	160	1822
Truck Expenses	35	42	53		110	40	56		112			102	50	565
Auto Expenses	36													
Misc. Farm Expenses	37		232	105		80	94		190	87		150	100	1038
Interest (existing obligations)	38		1200										5500	6700
Non-Breeding Livestock	39													
Cattle	40										7267	8140	7500	22907
	41													
OPERATING EXPEND. TOTAL (add lines 20 through 41)	E	2877	5018	2776	3652	2842	4498	2803	3235	3142	34248	11211	19675	95977
Breeding Stock Purchases	42													
	43													
Mach. and Equip. Purchases	44										1245			1245
Land and Bldg. Imprvm'ts	45			952										952
CAPITAL EXPENSES TOTAL (add lines 42 through 45)	F			952							1245			2197
TOTAL FARM EXPENSES (line E plus F)	G	2877	5018	3728	3652	2842	4498	2803	3235	3142	35493	11211	19675	98174
PRINCIPAL PAID existing obligations	46	1000	2000	1500	3500		8500	3500	4000	340			3000	27340
NON-FARM EXP. AND INVEST.	47									25000				25000
FAMILY LIVING	FL	842	1689	520	258	910	840	423	610	875	1123	833	900	9823
TOTAL DOLLARS USED (add lines G through FL)	H	4719	8707	5748	7410	3752	13838	6726	7845	29357	36616	12044	23575	160337
CASH DIFFERENCE FOR MONTH (line D minus H)		-469	369	27	-135	273	-31	372	152	12291	-12526	-7	10125	10441
CASH BALANCE BEGINNING OF MONTH (line N last month)		725	256	625	652	517	790	759	1131	1283	13574	1048	1041	
CASH AVAILABLE BEFORE BORROWING (line J±I)	K													
SHORT-TERM LOAN PROCEEDS (if line K is negative)	L													
SHORT-TERM LOAN REPAYMENTS (if line K is positive)	M													
CASH BALANCE END OF MO. (line K plus L minus M)	N	256	625	652	517	790	759	1131	1283	13574	1048	1041	11166	
SHORT-TERM CREDIT BALANCE line O last month plus L minus M	O	19840	21340	19840	16340	16340	7840	4340	340	0	13000	18500	15500	
20840		JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL

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FBMA II

Number on beginning inventory (from last year's Form 35 or last year's analysis) + number purchased (from Form 9, Expenditures) + number born (from Form 31) should be equal to number on closing inventory (from Form 16 or Form 35) + number sold (from Forms 3 and 4, Receipts) + number died (from Form 31) + number consumed (from Form 31).

3. How are enterprise Forms 32 and 33 totaled and cross-checked?

Give enrolles a copy of TM-26/HO-11. At the end of the year, the field records on Forms 32 and 33 should be complete on all crops harvested during the year. The forms should then be completed and checked to see that all numbers are in balance. Show TM-26/HO-11 and have enrollees follow on the handout as you discuss the following guidelines in totaling and cross-checking Forms 32 and 33 for the year.

a. Run column totals for lines A, B, C, D, E, F, G, and H on Form 32 and A, B, C, and D on Form 33.

b. Balance owned and rented acres and complete the land inventory on the bottom of Form 33. All owned and rented acres should be accounted for on Forms 32 and 33, even if they are non-productive acres. Use the following formulas in balancing and checking acre numbers.

Total owned farm acres (Form 33, line B, Column 2) equals total owned grain crop acres on Form 32, line H + owned forage and other acres on Form 33, line A.

Total rented farm acres (Form 33, line B, Column 3) equals total rented grain crop acres on Form 32, line H + rented forage and other acres on Form 33, line A.

Total farm acres (Form 33, line B, Column 4) equals total grain crop acres on Form 32, line 4 + forage and other acres on Form 33, line A.

On Form 33, line B, Column 2 + line B, Column 3 should equal line B, Column 4.

c. Complete the land inventory on the bottom of Form 33. Owned and rented land is classified as tillable, non-tillable or other on the land inventory. All land that is plowable including rotation pasture and hay is considered tillable. All other land is considered non-tillable except for totally non-productive land such as creeks, roads, and farmsteads. Use the following formulas in helping check the completed land inventory.

On Form 33, line B, Column 2 - line C (owned) should equal line D, Column 13.

On Form 33, line B, Column 3 - line C (rented) should equal line D, Column 14.

Line D, Column 13 + line D, Column 14 should equal line D, Column 15.

Line D, Column 17 + line D, Column 18 = line D, Column 19.

d. Balance production quantities. Check the figures on quantities of each crop produced against inventories, sales, purchases, and amount fed for each crop. Use the following formulas to balance crop quantities on each crop.

Quantity on beginning inventory (from Form 16 or last year's analysis) + quantity raised (from Form 32 or 33) + quantity purchased (from Form 7, Expenditures) should equal quantity sold (from Form 2, Receipts) + quantity fed (from Form 31s) + quantity on closing inventory (from Form 16 or 35)

e. Check enterprise expenses. Remember that the enterprise expenses for each crop are all of the expenses incurred by the operator and landlord for each harvested crop. They may include some items that were purchased in the prior year. Use the formula below to help determine if all crop expenses have been enterprised.

Prepaid crop expenses at the beginning of the year from last year's Form 35 (growing wheat expense and herbicides, seed, fertilizer, etc., for summer crops) + crop expenses during the year = expenses allocated to all crops (Forms 32 and 33) + any prepaid expenses for next year's crops including growing wheat (from Form 35).

4. **How are forms 34 and 35 updated?**

The procedures and guidelines for updating forms 34 and 35 are included in the instructors materials within the On-the-Farm Instruction section of this lesson. It has been suggested that the instructor help the enrollees complete these two forms after forms 27, 31, 32, and 33 are complete and accurate. For this reason, you might want to save this for the farm visit. If, however, you have time and the enrollees are comfortable with the rest, it would be a good time to give them each copies of forms 34 and 35 and use the guidelines provided to discuss updating them.

5. **How can I use the figures from the year's records summary to help in cash flow planning?**

As was pointed out in the motivation, good records provide a base for more accurate cash flow planning. The better job we do in analyzing records, the more meaningful job we can do in planning.

While showing TM-27, Cash Flow Planning, discuss how last year's records can be used to plan this year's cash flow. Use the following guidelines in your discussion.

a. How will this year's business be different from last years?

The idea here is to determine if the general farm production will be similar to what was done last year. Are crop acreages about the same? Are livestock numbers about the same? Am I going to be producing any new commodities and/or deleting any from last year, etc.?

b. How will my production cycles vary this year as compared to last?

In order to plan this year's cash flow, we need to determine when hogs will be farrowed or purchased and consequently when sold, when crops will be marketed, etc. Cash flow becomes a function of the production process, since we can not sell it before it is produced. Naturally, knowing what the production cycle will be will help us plan for both expenses and receipts on a timely basis. If the production cycles are relatively the same, last years cash flow may be very close in terms of timing of expenses and receipts.

c. What feed, grain, livestock, and supplies will carry over from last year to this year?

Use the closing inventory to determine the amount and kinds of feed, grain, livestock and supplies to be carried over. Is this more than the year before or about the same?

d. How much will I spend on overhead cost items this year as compared to last and when will they occur?

Last year's cash flow summary will be helpful in planning overhead costs. These generally change less and are more predictable than operating costs. Major purchases need to be included, in addition to normal overhead expenses like insurance, interest, etc.

e. How will operating expenses vary this year as compared to last?

After determining what will be produced and what the production cycles will be, use last year's operating expenses as on the cash flow summary as a basis for next years cash flow planning. The amount of expense is often similar but may come at different times. Using efficiency factors on crop and livestock enterprises from prior years' record analyses will enable us to do a much better job of cash flow planning also.

F. Group Discussion

Sufficient time should be given for enrollees to ask questions and discuss summarizing the record book for the year. You need to review the procedures each enrollee should go through in totaling and checking each form. Give enrollees a copy of HO-12, to use at home as they work individually to get their books ready for summarization and analysis. Discuss any problems enrollees feel they may encounter in getting this done. Discuss things they may want to do differently next year to make this job easier.

G. Conclusions

Conclusions which may be reached include:

1. An analysis of records is only as accurate as the figures that are used.
2. Summarizing the record book will be a simple job if it has been kept up to date correctly during the year.
3. The further you go in the record book before finding errors, the longer it will take to get them corrected.
4. A checklist should be followed when summarizing the record book to insure that nothing is left out.
5. Cash flow planning is made easier and more accurate when good records have been kept in past years.
6.

Announcements

Social

On-the-Farm Instruction

When visiting the enrollees after this lesson, you will be helping them fill out their input forms for the computer analysis. This may well be the most important visit of the year. The enrollees should have Forms 27, 31, 32, and 33 ready when you get there. The first thing you should do is go over these forms with the enrollees and make sure they are correct. If there are errors, work with the enrollees and get them corrected before doing anything else. As the enrollees get used to using the record system, they should have little difficulty in getting the record book to this point. After verifying that Forms 27, 31, 32, and 33 in the record book are correct, you will need to work together with the enrollees in completing the input forms for the computer analysis. Use the following guidelines in completing each of the input forms. A copy of the input forms with notes and a blank copy are included for the instructor's reference.

1. Form 27 - Input
    a. Enter name and school of operator and year.
    b. Complete the Operator $ Column directly from Form 27.
    c. Be sure enterprise names are entered on lines 1-4, 9-16, and 39-43.
    d. Enter quantities on appropriate lines.

e. Below line 7, break the entry on line 7 down into dividends, refunds, or resales. The value total of lines a-c must equal line 7. These figures are obtained from Form 2, Column 7 in the record book.

f. Include the number and weight of livestock in the quantity column for both non-breeding and breeding livestock.

g. Below line 20, list the kinds of purchased feed on lines B-F (corn, milo, hay, silage, etc.) and the quantity and value of each. The value total of lines A-F must equal line 20. These figures can be obtained from Form 7, Column 20. If a farmer buys grain and mixes it with supplement, it may be easier to include both quanity and value easier to include both quantity and value as mixed feed and enter it on line 20a. If it is shown purchased as mixed feed, it must also be shown fed as mixed feed, etc.

h. Below line 45, break the Land and Building Improvements into Buildings Purchased or Improved, Land Improvements that are to be capitalized, Land Improvements that are to be depreciated, and Land Purchased in acres. The value total of a-d must be equal to the figure on line 45. These figures can be obtained from Form 9, Column 45 in the record book.

i. For non-renters, move to Step k.

j. For renters:

  1) Cash only -

    a) Transfer the same figure as on Operator's line 29 to Landlord's line 8.

    b) Enter estimated or actual landlord's insurance, taxes, etc., on lines 32 and 33.

  2) Crop Share Renter, Crop-Livestock Share Renter, Cash Renter -

    a) Transfer any cash rent paid as in 1)a) above.

    b) Enter estimated or actual landlord's insurance and taxes as in 1)b) above.

    c) Enter quantity and value of landlord's share of crop, livestock receipts, etc., in Landlord Column. If the landlord has that share in storage, enter quantity and current value. (Most crop share renters know the above figure even though not recorded.)

    d) Enter quantity and value of landlord's expenses in Landlord Column. Most renters know this figure since it is a proportion of their fertilizer, seed, and chemical bill.

e) Crop share renters that receive payment for harvesting the landlord's share of crops need to have the amount received entered in Operator's Column, line 6, and Landlord's Column, line 28.

f) Complete "Total Column" and use for accuracy check on lines D and H. The total column does not need to be completed except for this accuracy check.

k. Complete the information on Purchase Cost of Market Livestock Sold. Enter the purchase cost of the livestock sold this year that is listed on lines 9-11. (Some of this livestock may have been purchased in a prior year, and some purchased this year will be sold next year.)

l. Lower right section:

1) Complete three labor boxes - put in each box the amount of labor contributed by that entity to the farm business in a year - show months in tenths such as 10.2 or 12.0.

2) Write in the federal gas tax refund box the amount of federal gas tax refund received in last year's federal tax returns if not included in Form 27 above.

3) Write in the state gas tax refund box the amount of state gas tax refunded to the enrollee during the year if not included in Form 27 above.

2. Forms 31, 32, and 33 - Livestock, Grain and Forage Crop Enterprise Data

These forms should be complete and ready to go. Check them over using the checking procedure outlined in Key Points 2 and 3 in this lesson, and in lesson 8, FBMA Unit I. Be sure and identify the type and # of enterprises at the top of Form 31's. Use HO-13to help enrollees do this. (This is critical for the averages to be accurate.) On Forms 32 and 33, keep rented crops on a separate line from owned crops and identify what pecentage of expenses were paid by the landlord on crop share arrangements at the bottom of the form. Instead of usng the enrollees' copies for including with the input forms, you may want to make copies so the enrollees can keep the original copies in their record books.

3. Form 34 - Capital Items

a. The purpose of this form is to identify items to be added to, or removed from, the depreciation schedule for this year. The depreciation schedule on file in the computer is as of January 1 of this year. This form is also used to identify items such as raised breeding stock sold this year that qualifies for capital gains.

b. Capital Items Purchased

1) Column 1. Use date acquired column to record date of purchase - Include month, day, and year.

2) Column 2. Describe enough so the enrollee can identify the item later. As an example, on a tractor, enter model as 4020 or IH. For livestock, enter 25 Angus cows, one York boar, etc. Include number in lot for livestock.

3) Column 3. Enter N or U.

4) Column 4. Enter cash difference paid. This is the same figure as Form 27, lines 42-45. If dealer credit is used, be sure the total paid, including the note, is entered here and the difference between down payment and that figure shown as money borrowed on Form 27, line 8.

5) Column 5. Enter the code number of item traded in (enter "-" if no trade-in.) The code number is from the depreciation schedule under Category, Detail, and Item Number - example 02 01 03.

6) Column 6. Enter amount of that item to be expensed if any. Enter 0 if none.

7) Column 7. Enter years life. This is only important if the straight line method is to be used.

8) Column 8. Enter depreciation method. Enter AC for accelerated and SL for alternate straight line. If purchased from a relative, identify the method under the old depreciation rules and write a note to explain.

9) Column 9. Add any comments to assist in identifying how to set it up.

NOTE: The total of all lines in Column 4 must agree with Form 27, line F.

c. Capital Items Sold

1) Column 1. Enter date sold.

2) Column 2. Enter an adequate description. (Preferably, enter the same description as is on the depreciation schedule.)

3) Column 3. Enter code number from depreciation schedule including category, detail, and item number - example, 01 02 01. In case of raised breeding stock sold, enter raised.

4) Column 4. Enter amount received. Note: Items traded in do not need to be entered here - they will be picked up from the form above.

5) Column 5. This is to be used for partial sales of an item. As an example, if 25 Angus cows were on the depreciation schedule and had a remaining cost of $8,000 and if five of these were sold this year - then, the value of the part sold is 5/25 of $8,000, or $1,600.

6) Column 6. Enter any comments that will help identify the transaction.

NOTE: The total of all lines in Column 4 must agree with Form 27, line B.

4. Form 35 - Inventory of Livestock, Inventory of Feed, Crops, and Supplies, and Asset:Liability Statement.

The inventories and asset:liability statement (Form 35) needs to be completed at the end of the year by enrollees that have had a computer analysis run on their records in prior years. For a first-time analysis, two Forms 35s must be completed and sent with the input forms, one for the end of last year and one for the end of this year. It is anticipated that after the first complete year of the program, enrollees will not need to keep Forms 16, 17, and 28 in the record book.

a. Complete the Inventory of Livestock.

1) Be sure to include number of head, total weight in pounds, and total value for all classes of livestock.

2) Values for Purchased Breeding Stock shown on lines 1, 12, and 25 are used in the financial statement and can either reflect fair market value or book value.

b. Complete the Inventory of Feed, Crops, and Supplies

1) Be sure to list quantities as specified on the form (tons for hay, bushels for soybeans, etc.).

c. Complete the Asset:Liability Statement.

1) The Modified Cost Basis and the Fair Market Value are needed. Modified cost is the book or depreciated value of an item, whereas, the fair market value would be defined as the true value of the item on today's market. If the fair market value is the same as the modified cost basis, the figure under modified cost will be transferred automatically to fair market value.

2) Complete all unshaded areas that are applicable. Completing the shaded lines is optional. The figures on the shaded lines are drawn from elsewhaere on the inpur forms.

Materials Needed

Instructor

TM-24: Completed Cash Flow Summary
TM-25: Completed Form 31, Livestock Enterprise Data
TM-26: Completed Form 32, Grain Crops Enterprise Record and Form 33, Forage Crops Enterprise Record
TM-27: Cash Flow Planning

Student

HO-8: Quiz - Summarizing the Year's Records
H[illegible] Completed Cash Flow Summary
[illegible]: Completed Form 31, Livestock Enterprise Data
HO-[illegible]: Completed Form 32, Grain Crops Enterprise Record and Form 33, Forage Crops Enterprise Record
HO-12: Checklist for Summarizing Records
HO-13: Enterprise Classifications - Livestock
Missouri Farm Business Analysis Record Book
Prior year's Farm Record Analysis

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Record Year ________

FORM 27--INPUT

Name ________

School ________

RECEIPTS	LINE	OPERATOR QUANTITY	OPERATOR $	LANDLORD QUANTITY	LANDLORD $	TOTAL QUANTITY	TOTAL $
CROP SALES ← { Corn, Wheat, & Soybeans in bushels.							
Milo in cwts.							
Hay and Silage in tons							
	4						
GOVERNMENT PAYMENTS	5						
CUSTOM WORK	6						
DIVIDENDS, REFUNDS, RESALES	7						
(a to c = 7) DIVIDENDS	a		} these 3 equal line 7				
REFUNDS	b						
RESALES	c						
CASH RENT, OTHER FARM	8						
NON-BR. LVSTK. SALES[1] ← no.	9	lbs		Include no. and wt. on all livestock sold and purchased.			
no.	10	lbs					
no.	11	lbs					
LIVESTOCK PRODUCTS	12						
	13						
[illegible] SALES TOT. (add 1-13)	A						
BR. LVSTK. SALES[1] no.	14	lbs	} should also be shown on Form 34.				
no.	15	lbs					
no.	16	lbs					
MACH., EQUIP., BLDGS. SOLD	17						
[illegible] SALES TOTAL (add 14-17)	B						
[illegible] RECEIPTS (A + B)	C						
MONEY BORROWED	18						
NON-FARM RECEIPTS	19						
[illegible] DOLLARS AVAILABLE	D						
EXPENDITURES							
FEED (a to f = total $)	20						
KIND OF FEED							
PROTEIN & MIXED FEEDS	a	} these must equal line 20.					
	b						
	c						
	d						
	e						
	f						
VET., MEDICINE	21						
BREEDING FEES, REGISTR.	22						
FERTILIZER, LIME	23						
CROP CHEMICALS	24						

FORM 27--INPUT (CONTINUED)

Record Year ______

Name ______ School ______

EXPENSES CONTINUED	LINE	OPERATOR QUANTITY	OPERATOR $	LANDLORD QUANTITY	LANDLORD $	TOTAL QUANTITY	TOTAL $
SEEDS, CROP SUPPLIES	25						
MACHINERY REPAIR, MAINT.	26						
BUILDING, FENCE REPAIR	27						
MACHINERY, TRUCK HIRE	28						
CASH RENT	29						
POWER FUEL, OIL, GREASE	30						
HIRED LABOR	31						
INSURANCE	32						
TAXES	33						
UTILITIES (Farm Share)	34						
TRUCK EXPENSES	35						
AUTO EXPENSES (Farm Share)	36	mi.					
MISC. FARM EXPENSES	37						
INTEREST	38						
NON-BR. LVSTK.[1] no.	39	lbs					
no.	40	lbs					
no.	41	lbs					
OPER. EXPEND. TOTAL (add 20-41)	E						
BR. STOCK PURCHASES[1] no.	42	lbs					
no.	43	lbs					
MACH. & EQUIP. PURCHASES	44						
LAND & BLDG. IMP. (a to d 45)	45						
BUILDINGS PURCH./IMPROVED	a						
LAND IMP.-CAPITALIZED	b						
LAND IMP.-DEPRECIATED	c						
LAND PURCHASED-ACRES	d						
CAPITAL EXP. TOTAL (add 42-45)	F						
TOTAL FARM EXPENSES (E + F)	G						
PRINCIPAL PAID	46						
NON-FARM EXP. AND INVEST.	47						
FAMILY LIVING	FL						
TOTAL DOLLARS USED (add G-FL)	H						

should also be shown on form 34.

these 4 equal line 45

PURCH COST LS SOLD	LINE 9-11 $
MKT. HOGS	
MKT. DAIRY CATTLE	
MKT. BEEF CATTLE	
MKT. SHEEP	
MKT. POULTRY	
MKT. OTHER:	

HIRED LABOR	UNPAID OPR. LABOR	UNPAID FAMILY LABOR	FEDERAL GAS TAX REFUND	STATE GAS TAX REF
mos.	mos.	mos.	$	$

if not included above.

---

[1] Include no. & wt. in quantity of livestock.

TYPE AND # ENTERPRISE ______________________ LIVESTOCK ENTERPRISE DATA FORM 31

Name ______________________ School ______________________

LINE	MONTH	FEED RECORD													VET & MED	LIVE-STOCK SUP/SER
		PROTEINS		GRAINS						ROUGHAGE						
				CORN						HAY		SILAGE		PASTURE		
		AMT	$	BU	$	AMT	$	AMT	$	TONS	$	TONS	$	DAYS	$	$
1	JAN															
2	FEB															
3	MARCH															
4	APRIL															
5	MAY															
6	JUNE															
7	JULY															
8	AUG															
9	SEPT															
10	OCT															
11	NOV															
12	DEC															
A	TOTAL															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

LINE	MONTH	DEATH LOSS		BREEDING RECORD				
		NO.	WT.	NO. F IN HERD	NO. F BRED	NO. OF BIRTHS	NO. BORN	NO. WEANED
3	JAN							
4	FEB							
5	MARCH							
6	APRIL							
7	MAY							
8	JUNE							
		16	17	18	19	20	21	22

MONTH	DEATH LOSS		BREEDING RECORD				
	NO.	WT.	NO. F IN HERD	NO. F BRED	NO. OF BIRTHS	NO. BORN	NO. WEANED
JULY							
AUG							
SEPT							
OCT							
NOV							
DEC							
TOTAL							
	23	24	25	26	27	28	29

after birth on cattle, after weaning on hogs

average per month

ine A--Col. 13: Pasture days = (pounds per animal ÷ 1000) x number of head x number of days grazed during month

ine B--Col. 23: No. died after weaning.

Col. 24: Weight of Col. 23.

Col. 25: No. females in herd.

Col. 26: No. females bred.

Col. 27: No. litters born or cows calved, etc.

No. head _____ Lbs. _____ Value _________ Consumed

Dairy:

% test _____

Cows dry _____

Cows milked _____

Gal. fed

Poultry:

Eggs Prod. _____ doz. $_____

Eggs Purch. _____ doz. $_____

Eggs Cons. _____ doz. $_____

Eggs Sold _____ doz. $

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GRAIN CROPS ENTERPRISE RECORD

FORM 32

Name ______________________ School ______________________

LINE	CROP	FIELD NO.	ACRES			BU/LBS RAISED SEED USED	PRODUCTION			ENTERPRISE EXPENSE			
			OWNED	RENTED	TOTAL		TOTAL (QUANTITY)	OPERATOR SHARE (QUANTITY)	LANDLORD SHARE (QUANTITY)	FERT LIME	PESTI-CIDES	SEED & SUPPLIES	DRYING & STORAGE
1	CORN FOR GRAIN												
2													
3													
4													
A	TOTAL CORN FOR GRAIN												
B	TOTAL OATS FOR GRAIN												
C	TOTAL BARLEY FOR GRAIN												
5	SOYBEAN FOR GRAIN owned												
6	cash rental beans												
7	share crop beans												
8													
D	TOTAL SOYBEAN FOR GRAIN												
9	WHEAT FOR GRAIN												
10													
11													
12													
E	TOTAL WHEAT FOR GRAIN												
13	MILO FOR GRAIN												
14													
15													
16													
F	TOTAL MILO FOR GRAIN												
17	OTHER GRAIN CROPS*												
18													
G	TOTAL OTHER GRAIN CROPS												
19	SET ASIDE ACRES												
H	TOTAL GRAIN CROPS												
	*Include cotton.	1	2	3	4	5	6	7	8	9	10	11	12

put rented crops on separate lines from owned crops.

On rental crop-share agreements, how are these costs divided between operator and landlord?

Milo quantities should be in cwts.

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FORM 33

FORAGE CROPS ENTERPRISE RECORD

Name ______________________ ol ______________________

LINE	CROP	FIELD NO.	ACRES OWNED	ACRES RENTED	ACRES TOTAL	[illegible] USED FOR SEED	PRODUCTION TOTAL (QUANTITY)	PRODUCTION OPERATOR SHARE (QUANTITY)	PRODUCTION LANDLORD SHARE (QUANTITY)	ENTERPRISE EXPENSE FERT LIME	ENTERPRISE EXPENSE PESTICIDES	ENTERPRISE EXPENSE SEED AND SUPPLIES	ENTERPRISE EXPENSE OTHER
1	CORN & SORGHUM SILAGE												
2													
3	HAYLAGE												
4	ALFALFA												
5													
6													
7	RED CLOVER (HAY & SEED)												
8													
9	FESCUE (HAY, PAST, SEED)												
10													
11	OTHER LEG & GRASS HAY												
12	LEG & GRASS PASTURE												
13	OTHER FORAGES:												
14	IDLE TILLABLE LAND												
15	NON-TILLABLE PASTURE												
16	WOODLAND												
17	FARMSTEAD, ROADS, ETC.												
A	TOTAL, THIS PAGE												
B	TOTAL FARM												
C	NO. ACRES D.C. ________	1	2	3	4	5	6	7	8	9	10	11	12

	LAND INVENTORY	ACRES OWNED	ACRES RENTED	ACRES TOTAL	VALUE PER ACRE[3]	TOTAL VALUE OWNED	TOTAL VALUE RENTED	TOTAL VALUE TOTAL
19	TILLABLE CROPLAND[1]							
20								
21	NON-TILLABLE[2]							
22								
23	OTHER LAND (ROADS, CREEKS)							
24								
D	TOTAL							
E	NO. OF ACRES IRRIGATED							

[1] Include all land that is plowable including rotation pasture and hay.

[2] Include non-tillable pasture, timber, etc.

[3] Use fair market value without buildings and improvement.

Line B--Totals from Forms 32 and 33.

Line C--D.C. indicates double-cropping.

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FOR

CAPITAL ITEMS--PURCHASED (Fo 7--Input, Lines 42-45)
(Machinery, Purchased Breeding Livestock, Land, Buildings, Fences, etc.)

Name ____________________ School ____________________

LINE	DATE ACQUIRED	ITEM DESCRIPTION KIND OF MACHINE, MAKE, MODEL, SIZE, OR LIVESTOCK, OR OTHER	NEW OR USED	CASH DIFFERENCE PAID	CODE NUMBER OF TRADE-IN[1]	AMOUNT TO EXPENSE	LIFE	METHOD	ENTERPRISE & COMMENTS
1									
2									
3									
4									
5									
6									
7									
8									
9									
10		TOTAL							
	1	2	3	4	5	6	7	8	9

← this total must equal the value of capital purchases on form 27-Input.

only necessary for straight line.

either AC or SL

CAPITAL ITEMS--SOLD (Form 27--Input, Lines 14-17)

LINE	DATE SOLD	ITEM DESCRIPTION KIND OF MACHINE, MAKE, MODEL, SIZE, OR LIVESTOCK, OR OTHER	CODE NUMBER[1]	AMOUNT RECEIVED	VALUE OF PART SOLD	COMMENTS[2]
11						
12						
13						
14						
15						
16						
17						
18						
19						
20		TOTAL				
	1	2	3	4	5	6

← this total must equal the value of capital items sold on form 27-Input

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[1] Code numbers for the item being traded are the numbers in Columns 3, 4, 5, and 6 on the left side of the depreciation printout.

[2] In the case of selling raised breeding stock, write raised under comments.

LINE	INVENTORY OF LIVESTOCK	END 19___ NO. HD.	TOTAL WT/#	$/ UN	TOTAL VALUE
	SWINE				
1	Purch. Breeding				
2	Rsd. Breed.-Sows				
3	-Gilts				
4	-Boars				
5	**Tot. Breed. Swine**				
6	Hogs				
7	Pigs				
8	Gilts				
9	Boars				
10	**Tot. Non-Br. Swine**				
11	**Total Swine**				
	BEEF				
12	Purch. Breeding				
13	Rsd. Breed.-Cows				
14	-Heifers				
15	-Bulls				
16	**Tot. Breed. Beef**				
17	1-2 yr. Heifers				
18	Bulls				
19	Weaned, Heifers				
20	Bulls				
21	Steers				
22	Sucking Calves				
23	**Tot. Non-Br. Beef**				
24	**Total Beef**				
	DAIRY				
25	Purch. Breeding				
26	Rsd. Breed.-Cows				
27	Bred Heifers				
28	Open Heifers				
29	Bulls				
30	**Tot. Breed. Dairy**				
31	Heifers				
32	Bulls				
33	Steers				
34	Calves				
35	**Tot. Non-Br. Dairy**				
36	**Total Dairy**				
	OTHER				
37					
38					
39	**Total Breeding**				
40					
41					
42	**Tot. Non-Breeding**				

LINE	INVENTORY OF FEED, CROPS, AND SUPPLIES	END 19___ QUANTITY	$/ UNIT	TOTAL VALUE
	PURCHASED FEEDS			
1	Prep. Feeds (lbs)			
2				
3	Protein Supp. (lbs)			
4				
5	Vit., Min. (lbs)			
6				
7	**Tot. Purch. Feeds**			
	STORED CROPS			
8	Corn (bu.)			
9	Wheat (bu.)			
10	Gr. Sorghum (cwt.)			
11	Soybeans (bu.)			
12	Cotton (lbs.)			
13	Silage (tons)			
14				
15	Hay (tons)			
16				
17	Straw (tons)			
18	**Tot. Stored Crops**			
	GROWING CROPS-$ INVESTED			
19				
20				
21	**Tot. Growing Crops**			
	CROP SUPPLIES			
22	Seeds			
23				
24	Fert., Lime Applied			
25	Fert. Stored			
26				
27	Herbicides			
28				
29	Insecticides			
30	Fungicides			
31	Twine, etc.			
32	Fuel			
33				
34	Oil			
35	Grease			
36	**Tot. Crop Supplies**			
	LIVESTOCK SUPPLIES			
37	Vet. Supplies			
38				
39	Bedding			
40	Other Supplies			
41	**Tot. Lvsk. Supplies**			

LINE	ASSET:LIABILITY STATEMENT END 19___	MODIFIED COST BASIS	FAIR MARKET VALUE
	ASSETS		
1	Family Bank Balance		
2	Savings		
3	Stocks & Bonds		
4	Accts. & Notes Rec. (non-farm)		
5	Life Insur. (cash value)		
6	Auto (family share)		
7	Non-Farm Real Estate		
8	Other Non-Farm (household, etc.)		
9	**Total Non-Farm Assets (add 1-8)**		
10	Cash in Farm Account		
11	Farm Accounts Receivable		
12	Non-Br. Lvsk. (F16, L10/23/35/42)		
13	Purch. Feeds (F17, L7)		
14	Stored Crops (F17, L18)		
15	Growing Crops (F17, L21)		
16	Livestock/Crop Suppl. (F17, L36/43)		
17	Other Current Farm Assets		
18	**Total Farm Curr. Assets (add 10-17)**		
19	Breeding Lvsk. (F16, L5/16/30/39)		
20	Machinery & Equipment (F13)		
21	**Tot. Farm Int. Assets (add 19-20)**		
22	Buildings (F18, L14)		
23	Land (F18, L30)		
24	Land Improvements (F18, L24)		
25	**Tot. Farm L. T. Assets (add 22-24)**		
	LIABILITIES		
26	Charge Accounts		
27	Non-Farm Notes & Mort. (current)		
28	Non-Farm Notes & Mort. (It. & L. T.)		
29	Other Non-Farm Liabilities		
30	**Tot. Non-Farm Liab. (add 26-29)**		
31	Short Term Farm Notes Payable		
32			
33	Accounts Payable		
34			
35	Portion It. & L. T. Debt due next yr.		
36	Accrued Liab. (taxes, rent, int.)		
37	Other Farm Current Liabilities		
38	**Total Farm Current Liab. (add 31-37)**		
39	Portion I. T. Debt due after next yr.		
40	Other Farm Int. Liabilities		
41	**Total Farm Int. Liab. (add 39-40)**		
42	Portion L. T. Debt due after next yr.		
43	Other Farm Long Term Liabilities		
44	**[illegible] (add 42-43)**		

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Record Year

FORM 27--INPUT

Name

School

RECEIPTS		LINE	OPERATOR		LANDLORD		TOTAL	
			QUANTITY	$	QUANTITY	$	QUANTITY	$
CROP SALES		1						
		2						
		3						
		4						
GOVERNMENT PAYMENTS		5						
CUSTOM WORK		6						
DIVIDENDS, REFUNDS, RESALES		7						
(a to c = 7) DIVIDENDS		a						
REFUNDS		b						
RESALES		c						
CASH RENT, OTHER FARM		8						
NON-BR. LVSTK. SALES[1]	no.	9	lbs					
	no.	10	lbs					
	no.	11	lbs					
LIVESTOCK PRODUCTS		12						
		13						
OPERATING SALES TOT. (Add 1-13)								
BR. LVSTK. SALES[1]	no.	14	lbs					
	no.	15	lbs					
	no.	16	lbs					
MACH., EQUIP., BLDGS. SOLD		17						
CAPITAL SALES TOTAL (Add 14-17)								
TOTAL FARM RECEIPTS (A + B)		C						
MONEY BORROWED		18						
NON-FARM RECEIPTS		19						
TOTAL DOLLARS AVAILABLE								
EXPENDITURES								
FEED (a to f = total $)		20						
KIND OF FEED								
PROTEIN & MIXED FEEDS		a						
		b						
		c						
		d						
		e						
		f						
VET., MEDICINE		21						
BREEDING FEES, REGISTR.		22						
FERTILIZER, LIME		23						
CROP CHEMICALS		24						

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FORM 27--INPUT (CONTINUED)

Record Year________

Name____ School____

EXPENSES CONTINUED	LINE	OPERATOR QUANTITY	OPERATOR $	LANDLORD QUANTITY	LANDLORD $	TOTAL QUANTITY	TOTAL $
SEEDS, CROP SUPPLIES	25						
MACHINERY REPAIR, MAINT.	26						
BUILDING, FENCE REPAIR	27						
MACHINERY, TRUCK HIRE	28						
CASH RENT	29						
POWER FUEL, OIL, GREASE	30						
HIRED LABOR	31						
INSURANCE	32						
TAXES	33						
UTILITIES (Farm Share)	34						
TRUCK EXPENSES	35						
AUTO EXPENSES (Farm Share)	36	mi.					
MISC. FARM EXPENSES	37						
INTEREST	38						
NON-BR. LVSTK.[1] no.	39	lbs					
no.	40	lbs					
no.	41	lbs					
OPER. EXPEND. TOTAL (add 20-41)	E						
BR. STOCK PURCHASES[1] no.	42	lbs					
no.	43	lbs					
MACH. & EQUIP. PURCHASES	44						
LAND & BLDG. IMP. (a to d = 45)	45						
BUILDINGS PURCH./IMPROVED	a						
LAND IMP.-CAPITALIZED	b						
LAND IMP.-DEPRECIATED	c						
LAND PURCHASED-ACRES	d						
CAPITAL EXP. TOTAL (add 42-45)	F						
TOTAL FARM EXPENSES (E + F)	G						
PRINCIPAL PAID	46						
NON-FARM EXP. AND INVEST.	47						
FAMILY LIVING	FL						
TOTAL DOLLARS USED (add G-FL)	H						

PURCH COST LS SOLD	LINE 9-11 $
MKT. HOGS	
MKT. DAIRY CATTLE	
MKT. BEEF CATTLE	
MKT. SHEEP	
MKT. POULTRY	
MKT. OTHER:	

HIRED LABOR	UNPAID OPR. LABOR	UNPAID FAMILY LABOR	FEDERAL GAS TAX REFUND	STATE GAS TAX REFUND
mos.	mos.	mos.	$	$

---

[1] Include no. & wt. in quantity of livestock.

TYPE AN OF ENTERPRISE ____________________ VESTOCK ENTERPRISE DATA ORM 31

Name ____________________ School ____________________

LINE	MONTH	FEED RECORD													VET & MED	LIVE-STOCK SUP/SER
		PROTEINS		GRAINS						ROUGHAGE						
				CORN						HAY		SILAGE		PASTURE		
		AMT	$	BU	$	AMT	$	AMT	$	TONS	$	TONS	$	DAYS	$	$
1	JAN															
2	FEB															
3	MARCH															
4	APRIL															
5	MAY															
6	JUNE															
7	JULY															
8	AUG															
9	SEPT															
10	OCT															
11	NOV															
12	DEC															
A	TOTAL															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

LINE	MONTH	DEATH LOSS		BREEDING RECORD					MONTH	DEATH LOSS		BREEDING RECORD				
		NO.	WT.	NO. F IN HERD	NO. F BRED	NO. OF BIRTHS	NO. BORN	NO. WEANED		NO.	WT.	NO. F IN HERD	NO. F BRED	NO. OF BIRTHS	NO. BORN	NO. WEANED
13	JAN								JULY							
14	FEB								AUG							
15	MARCH								SEPT							
16	APRIL								OCT							
17	MAY								NOV							
18	JUNE								DEC							
B									TOTAL							
		16	17	18	19	20	21	22		23	24	25	26	27	28	29

Line A--Col. 13: Pasture days = (pounds per animal ÷ 1000) x number of head x number of days grazed during month

Line B--Col. 23: No. died after weaning.

Col. 24: Weight of Col. 23.

Col. 25: No. females in herd.

Col. 26: No. females bred.

Col. 27: No. litters born or cows calved, etc.

No. head ______ Lbs. ______ Value ________ Consumed

Dairy:

% test ______

Cows dry ______

Cows milked ______

Gal. fed ______

Poultry:

Eggs Prod. ______ doz. $______

Eggs Purch. ______ doz. $______

Eggs Cons. ______ doz. $______

Eggs Sold ______ doz. $______

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TYPE AND # OF ENTERPRISE ______________________ LIVESTOCK ENTERPRISE DATA FORM 31

Name ______________________ School ______________________

		FEED RECORD														
				GRAINS						ROUGHAGE						
LINE	MONTH	PROTEINS		CORN						HAY		SILAGE		PASTURE	VET & MED $	LIVE-STOCK SUP/SER $
		AMT	$	BU	$	AMT	$	AMT	$	TONS	$	TONS	$	DAYS		
1	JAN															
2	FEB															
3	MARCH															
4	APRIL															
5	MAY															
6	JUNE															
7	JULY															
8	AUG															
9	SEPT															
10	OCT															
11	NOV															
12	DEC															
A	TOTAL															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

		DEATH LOSS		BREEDING RECORD						DEATH LOSS		BREEDING RECORD				
LINE	MONTH	NO.	WT.	NO. F IN HERD	NO. F BRED	NO. OF BIRTHS	NO. BORN	NO. WEANED	MONTH	NO.	WT.	NO. F IN HERD	NO. F BRED	NO. OF BIRTHS	NO. BORN	NO. WEANED
13	JAN								JULY							
14	FEB								AUG							
15	MARCH								SEPT							
16	APRIL								OCT							
17	MAY								NOV							
18	JUNE								DEC							
B									TOTAL							
		16	17	18	19	20	21	22		23	24	25	26	27	28	29

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Line A--Col. 13: Pasture days = (pounds per animal ÷ 1000) x number of head x number of days grazed during month

Line B--Col. 23: No. died after weaning.

Col. 24: Weight of Col. 23.

Col. 25: No. females in herd.

Col. 26: No. females bred.

Col. 27: No. litters born or cows calved, etc.

No. head _____ Lbs. _____ Value _______ Consumed

Dairy:

% test _____

Cows dry _____

Cows milked _____

Gal. fed _____

Poultry:

Eggs Prod. _____ doz. $_____

Eggs Purch. _____ doz. $_____

Eggs Cons. _____ doz. $_____

Eggs Sold _____ doz. $_____

GRAIN CROPS ENTERPRISE RECORD

Name ________________ School ________________

LINE	CROP	FIELD NO.	ACRES			BU/LBS RAISED SEED USED	PRODUCTION			ENTERPRISE EXPENSE			
			OWNED	RENTED	TOTAL		TOTAL (QUANTITY)	OPERATOR SHARE (QUANTITY)	LANDLORD SHARE (QUANTITY)	FERT LIME	PESTI-CIDES	SEED & SUPPLIES	DRYING & STORAGE
1	CORN FOR GRAIN												
2													
3													
4													
A	TOTAL CORN FOR GRAIN												
B	TOTAL OATS FOR GRAIN												
C	TOTAL BARLEY FOR GRAIN												
5	SOYBEAN FOR GRAIN												
6													
7													
8													
D	TOTAL SOYBEAN FOR GRAIN												
9	WHEAT FOR GRAIN												
10													
11													
12													
E	TOTAL WHEAT FOR GRAIN												
13	MILO FOR GRAIN												
14													
15													
16													
F	TOTAL MILO FOR GRAIN												
17	OTHER GRAIN CROPS*												
18													
G	TOTAL OTHER GRAIN CROPS												
19	SET ASIDE ACRES												
H	TOTAL GRAIN CROPS												
	*Include cotton.	1	2	3	4	5	6	7	8	9	10	11	12

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FORAGE CROPS ENTERPRISE RECORD

School

LINE	CROP	FIELD NO.	ACRES OWNED	ACRES RENTED	ACRES TOTAL	BU./LBS. USED FOR SEED	PRODUCTION TOTAL (QUANTITY)	PRODUCTION OPERATOR SHARE (QUANTITY)	PRODUCTION LANDLORD SHARE (QUANTITY)	ENTERPRISE EXPENSE FERT LIME	ENTERPRISE EXPENSE PESTI-CIDES	ENTERPRISE EXPENSE SEED AND SUPPLIES	ENTERPRISE EXPENSE OTHER
1	CORN & SORGHUM SILAGE												
2													
3	HAYLAGE												
4	ALFALFA												
5													
6													
7	RED CLOVER (HAY & SEED)												
8													
9	FESCUE (HAY, PAST, SEED)												
10													
11	OTHER LEG & GRASS HAY												
12	LEG & GRASS PASTURE												
13	OTHER FORAGES												
14	IDLE TILLABLE LAND												
15	NON-TILLABLE PASTURE												
16	WOODLAND												
17	FARMSTEAD, ROADS, ETC.												
A	TOTAL, THIS PAGE												
B	TOTAL FARM												
C	NO. ACRES D.C.												
		1	2	3	4	5	6	7	8	9	10	11	12

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LINE	LAND INVENTORY	ACRES OWNED	ACRES RENTED	ACRES TOTAL	VALUE PER ACRE	TOTAL VALUE OWNED	TOTAL VALUE RENTED	TOTAL VALUE TOTAL
19	TILLABLE CROPLAND[1]							
20								
21	NON-TILLABLE[2]							
22								
23	OTHER LAND (ROADS, CREEKS)							
24								
D	TOTAL							
E	NO. OF ACRES IRRIGATED							
		13	14	15	16	17	18	19

[1] Include all land that is plowable including rotation pasture and hay.

[2] Include non-tillable pasture, timber, etc.

[3] Use fair market value without buildings and improvement.

Line B--Totals from Forms 32 and 33.

Line C--D.C. indicates double-cropping.

FORM 34

CAPITAL ITEMS--PURCHASED (Form 27--Input, Lines 42-45)
(Machinery, Purchased Breeding Livestock, Land, Buildings, Fences, etc.)

Name ______________________ School ______________________

LINE	DATE ACQUIRED	ITEM DESCRIPTION KIND OF MACHINE, MAKE, MODEL, SIZE, OR LIVESTOCK, OR OTHER	NEW OR USED	CASH DIFFERENCE PAID	CODE NUMBER OF TRADE-IN[1]	AMOUNT TO EXPENSE	LIFE	METHOD	ENTERPRISE & COMMENTS
1									
2									
3									
4									
5									
6									
7									
8									
9									
10		TOTAL							
	1	2	3	4	5	6	7	8	9

CAPITAL ITEMS--SOLD (Form 27--Input, Lines 14-17)

LINE	DATE SOLD	ITEM DESCRIPTION KIND OF MACHINE, MAKE, MODEL, SIZE, OR LIVESTOCK, OR OTHER	CODE NUMBER[1]	AMOUNT RECEIVED	VALUE OF PART SOLD	COMMENTS[2]
11						
12						
13						
14						
15						
16						
17						
18						
19						
20		TOTAL				
	1	2	3	4	5	6

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[1] Code numbers for the item being traded are the numbers in Columns 3, 4, 5, and 6 on the left side of the depreciation printout.

[2] In the case of selling raised breeding stock, write raised under comments.

FORM 35

LINE	INVENTORY OF LIVESTOCK	END 19__ NO. HD.	TOTAL WT/#	$/UN	TOTAL VALUE
	SWINE				
1	Purch. Breeding				
2	Rsd. Breed.-Sows				
3	-Gilts				
4	-Boars				
5	**Tot. Breed. Swine**				
6	Hogs				
7	Pigs				
8	Gilts				
9	Boars				
10	Tot. Non-Br. Swine				
11	Total Swine				
	BEEF				
12	Purch. Breeding				
13	Rsd. Breed.-Cows				
14	-Heifers				
15	-Bulls				
16	Tot. Breed. Beef				
17	1-2 yr. Heifers				
18	Bulls				
19	Weaned, Heifers				
20	Bulls				
21	Steers				
22	Sucking Calves				
23	**Tot. Non-Br. Beef**				
24	**Total Beef**				
	DAIRY				
25	Purch. Breeding				
26	Rsd. Breed.-Cows				
27	Bred Heifers				
28	Open Heifers				
29	Bulls				
30	**Tot. Breed. Dairy**				
31	Heifers				
32	Bulls				
33	Steers				
34	Calves				
35	**Tot. Non-Br. Dairy**				
36	**Total Dairy**				
	OTHER				
37					
38					
39	**Total Breeding**				
40					
41					
42	**Tot. Non-Breeding**				

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LINE	INVENTORY OF FEED, CROPS, AND SUPPLIES	END 19__ QUANTITY	$/UNIT	TOTAL VALUE
	PURCHASED FEEDS			
1	Prep. Feeds (lbs)			
2				
3	Protein Supp. (lbs)			
4				
5	Vit., Min. (lbs)			
6				
7	**Tot. Purch. Feeds**			
	STORED CROPS			
8	Corn (bu.)			
9	Wheat (bu.)			
10	Gr. Sorghum (cwt.)			
11	Soybeans (bu.)			
12	Cotton (lbs.)			
13	Silage (tons)			
14				
15	Hay (tons)			
16				
17	Straw (tons)			
18	**Tot. Stored Crops**			
	GROWING CROPS-$ INVESTED			
19				
20				
21	**Tot. Growing Crops**			
	CROP SUPPLIES			
22	Seeds			
23				
24	Fert., Lime Applied			
25	Fert. Stored			
26				
27	Herbicides			
28				
29	Insecticides			
30	Fungicides			
31	Twine, etc.			
32	Fuel			
33				
34	Oil			
35	Grease			
36	**Tot. Crop Supplies**			
	LIVESTOCK SUPPLIES			
37	Vet. Supplies			
38				
39	Bedding			
40	Other Supplies			
41	**Tot. Lvsk. Supplies**			

LINE	ASSET:LIABILITY STATEMENT END 19__	MODIFIED COST BASIS	FAIR MARKET VALUE
	ASSETS		
1	Family Bank Balance		
2	Savings		
3	Stocks & Bonds		
4	Accts. & Notes Rec. (non-farm)		
5	Life Insur. (cash value)		
6	Auto (family share)		
7	Non-Farm Real Estate (residence, etc)		
8	Other Non-Farm (household, etc.)		
9	**Total Non-Farm Assets (add 1-8)**		
10	Cash in Farm Account		
11	Farm Accounts Receivable		
12	Non-Br.Lvsk. (F16, L10/23/35/42)		
13	Purch. Feeds (F17, L7)		
14	Stored Crops (F17, L18)		
15	Growing Crops (F17, L21)		
16	Livestock/Crop Suppl. (F17, L36/43)		
17	Other Current Farm Assets		
18	**Total Farm Curr. Assets (add 10-17)**		
19	Breeding Lvsk. (F16, L5/16/30/39)		
20	Machinery & Equipment (F13)		
21	**Tot. Farm Int. Assets (add 19-20)**		
22	Buildings (F16, L14)		
23	Land (F18, L30)		
24	Land Improvements (F18, L24)		
25	**Tot. Farm L. T. Assets (add 22-24)**		
	LIABILITIES		
26	Charge Accounts		
27	Non-Farm Notes & Mort. (current)		
28	Non-Farm Notes & Mort. (It. & L. T.)		
29	Other Non-Farm Liabilities		
30	**Tot. Non-Farm Liab. (add 26-29)**		
31	Short Term Farm Notes Payable		
32			
33	Accounts Payable		
34			
35	Portion It. & L. T. Debt due next yr.		
36	Accrued Liab. (taxes, rent, int.)		
37	Other Farm Current Liabilities		
38	**Total Farm Current Liab. (add 31-37)**		
39	Portion I. T. Debt due after next yr.		
40	Other Farm Int. Liabilities		
41	**Total Farm Int. Liab. (add 39-40)**		
42	Portion L. T. Debt due after next yr.		
43	Other Farm Long Term Liabilities		
44	**Total Farm L. T. Liab. (add 42-43)**		

FORM 27 **CASH FLOW** **FINANCIAL PLAN OR SUMMARY**

	LINE	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG	SEPT.	OCT.	NOV.	DEC.	TOTAL
RECEIPTS														
Crop Sales Wheat	1						1715							
Fescue Seed	2						3124							
	3													
	4													
Gov't Payments	5													
Custom Work	6							2411						
Dividends, Refunds, Resales	7													
Cash Rent, Other Farm	8													
Non-Brdg Livestock Sales	9													
Cattle	10									36828	3105			
Hogs	11	4163	7493	3794	7188	3938	6970	4600	7910	4490	7898	4400	7800	
Livestock Products	12													
	13													
OPERATING SALES TOTAL (add lines 1 through 13)	A	4163	7493	3794	7188	3938	11809	7011	7910	41318	11003	4400	7800	
Breeding Livestock Sales	14													
Hogs	15			1894			1911			243		2050		
	16													
Mach. Equip., Bldgs. Sold	17													
CAPITAL SALES TOTAL (add lines 14 through 17)	B			1894			1911			243		2050		
TOTAL FARM RECEIPTS (line A plus B)	C	4163	7493	5688	7188	3938	13720	7011	7910	41561	11003	6450	7800	
MONEY BORROWED summary only	18		1500								13000	5500		
NON-FARM RECEIPTS	19	87	83	87	87	87	87	87	87	87	87	87	25900	
TOTAL DOLLARS AVAILABLE	D	4250	9076	5775	7275	4025	13807	7098	7997	41648	24090	12037	33700	
EXPENDITURES														
Feed	20	2412	2615	2211	2275	2304	2310	2105	2475	2280	26275	2411	3200	
Vet., Med	21		122	75	30	40	71	110		30			75	
Breeding Fees, Registr.	22													
Fertilizer, Lime	23		210				910				280		2100	
Crop Chemicals	24						130							
Seeds, Crop Supplies	25		113				78							
Machinery Repair, Maint.	26	122		60	85		412		65	60			110	
Building, Fence Repair	27		150		322		74		71	65	141	128		
Machinery, Truck Hire	28													

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Cash Rent														
Power, Fuel, Oil, Grease	30	140	175	160	275	2[illegible]	200	428	170	270	135	140	150	
Hired Labor	31													
Insurance	32				420					220				
Taxes	33													
Utilities	34	161	148	175	135	138	163	160	152	140	150	140	160	
Truck Expenses	35	42	53		110	40	56		112			102	50	
Auto Expenses	36													
Misc. Farm Expenses	37		232	105		80	94		190	87		150	100	
Interest (existing obligations)	38		1200										5500	
Non-Breeding Livestock	39													
Cattle	40										7267	8140	7500	
	41													
OPERATING EXPEND. TOTAL (add lines 20 through 41)	E	2877	5018	2776	3652	2842	4498	2803	3235	3142	34248	11211	19675	
Breeding Stock Purchases	42													
	43													
Mach. and Equip. Purchases	44										1245			
Land and Bldg. Imprvm'ts	45			952										
CAPITAL EXPENSES TOTAL (add lines 42 through 45)	F			952							1245			
TOTAL FARM EXPENSES (line E plus F)	G	2877	5018	3728	3652	2842	4498	2803	3235	3142	35493	11211	19675	
PRINCIPAL PAID existing obligations	46	1000	2000	1500	3500		8500	3500	4000	340			3000	
NON-FARM EXP. AND INVEST.	47									25000				
FAMILY LIVING	FL	842	1689	520	258	910	840	423	610	875	1123	833	900	
TOTAL DOLLARS USED (add lines G through FL)	H	4719	8707	5748	7410	3752	13838	6726	7845	29357	36616	12044	23575	
CASH DIFFERENCE FOR MONTH (line D minus H)	I	-469	369	27	-135	273	-31	372	152	12291	-12526	-7	10125	
CASH BALANCE BEGINNING OF MONTH (line N last month)	J	725	256	627	652	517	790	759	1131	1283	13574	1048	1041	
CASH AVAILABLE BEFORE BORROWING (line J±I)	K													
SHORT-TERM LOAN PROCEEDS (if line K is negative)	L		1500								13000	5500		
SHORT-TERM LOAN REPAYMENTS (if line K is positive)	M	1000		1500	3500		8500	3500	4000	340			3000	
CASH BALANCE END OF MO. (line K plus L minus M)	N	256	625	652	517	790	759	1131	1283	13574	1048	1041	11166	
SHORT-TERM CREDIT BALANCE line O last month plus L minus M	O	19840	21340	19840	16340	16340	7840	4340	340	0	13000	18500	15500	
20840		JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL

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TM-24 (cont'd)
HO-9 (cont'd)
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BEEF #20 LIVESTOCK ENTERPRISE DATA

FORM 31

Name SAMPLE

School

LINE	MONTH	FEED RECORD													VET & MED	LIVESTOCK SUP/SER
		PROTEINS		GRAINS						ROUGHAGE						
				CORN						HAY		SILAGE		PASTURE		
		AMT	$	BU	$	AMT	$	AMT	$	TONS	$	TONS	$	DAYS	$	$
1	JAN	3780#	775							6.5	390					
2	FEB	300#	27	48	142					8.5	510					
3	MARCH									4.9	294			414	95	
4	APRIL													845		
5	MAY	300#	27	48	151									891		23
6	JUNE													879	35	
7	JULY													926		
8	AUG	6600#	1319	48	163									944	105	
9	SEPT													925		
10	OCT													592		
11	NOV									3.2	192			296		
12	DEC									6.5	390					
A	TOTAL	10,980	$2148	144	$456					29.6	$1776			6712	$235	$23
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

LINE	MONTH	DEATH LOSS		BREEDING RECORD					MONTH	DEATH LOSS		BREEDING RECORD				
		NO.	WT.	NO. F IN HERD	NO. F BRED	NO. OF BIRTHS	NO. BORN	NO. WEANED		NO.	WT.	NO. F IN HERD	NO. F BRED	NO. OF BIRTHS	NO. BORN	NO. WEANED
13	JAN			21					JULY			21		4	4	
14	FEB			21				19	AUG			21				
15	MARCH			21					SEPT			20	20			
16	APRIL			21					OCT			20				
17	MAY			21					NOV			20				
18	JUNE			21		16	16		DEC			20				
B									TOTAL				20	20	20	19
		16	17	18	19	20	21	22		23	24	25	26	27	28	29

Line A--Col. 13: Pasture days = (pounds per animal ÷ 1000) x number of head x number of days grazed during month
Line B--Col. 23: No. died after weaning.
Col. 24: Weight of Col. 23.
Col. 25: No. females in herd.
Col. 26: No. females bred.
Col. 27: No. litters born or cows calved, etc.

No. head ______ Lbs. ______ Value ______ Consumed

Dairy:

% test ______
Cows dry ______
Cows milked ______
Gal. fed ______

Poultry:

Eggs Prod. ______ doz.
Eggs Purch. ______ doz.
Eggs Cons. ______ doz.
Eggs Sold ______ doz.

FBMA III
HO-10
TM-25

Name SAMPLE

GRAIN CROPS ENTERPRISE RECORD

School

FORM 32

LINE	CROP	FIELD NO.	ACRES			BU/LBS RAISED SEED USED	PRODUCTION			ENTERPRISE EXPENSE			
			OWNED	RENTED	TOTAL		TOTAL (QUANTITY)	OPERATOR SHARE (QUANTITY)	LANDLORD SHARE (QUANTITY)	FERT LIME	PESTI-CIDES	SEED & SUPPLIES	DRYING & STORAGE
1	CORN FOR GRAIN	6	20		20		1800 bu	1800 bu		920	340	300	288
2													
3													
4													
A	TOTAL CORN FOR GRAIN		20		20		1800 bu	1800 bu		920	340	300	288
B	TOTAL OATS FOR GRAIN												
C	TOTAL BARLEY FOR GRAIN												
5	SOYBEAN FOR GRAIN Double Crop	7	35		35		1050 bu	1050 bu		455	525	315	63
6													
7													
8													
D	TOTAL SOYBEAN FOR GRAIN		35		35		1050 bu	1050 bu		455	525	315	63
9	WHEAT FOR GRAIN	3	18		18		720 bu	720 bu		576		144	
10		7	35		35		1610 bu	1610 bu		1120		280	
11													
12													
E	TOTAL WHEAT FOR GRAIN		53		53		2330 bu	2330 bu		1696		424	
13	MILO FOR GRAIN	4	30		30		2400 bu	2400 bu		1080	390	150	144
14		1	15		15		1080 bu	1080 bu		540	195	75	65
15	double cropped	3	18		18		1098 bu	1098 bu		504	234	90	66
16	rented from John C.			65	65		5460 bu	2730 bu	2730 bu	2340	845	325	164
F	TOTAL MILO FOR GRAIN		63	65	128		10,038 bu	7308 bu	2730 bu	4464	1664	640	439
17	OTHER GRAIN CROPS*												
18													
G	TOTAL OTHER GRAIN CROPS												
19	SET ASIDE ACRES												
H	TOTAL GRAIN CROPS		171	65	236					$7535	$2529	$1679	$790
	*Include cotton.	1	2	3	4	5	6	7	8	9	10	11	12

129
TM-26
HO-11
FBMA III

FORAGE CROPS ENTERPRISE RECORD FORM 33

Name SAMPLE School

LINE	CROP	FIELD NO.	ACRES			BU/LBS. USED FOR SEED	PRODUCTION			ENTERPRISE EXPENSE			
			OWNED	RENTED	TOTAL		TOTAL (QUANTITY)	OPERATOR SHARE (QUANTITY)	LANDLORD SHARE (QUANTITY)	FERT LIME	PESTI-CIDES	SEED AND SUPPLIES	OTHER
1	CORN ~~& SORGHUM~~ green chop SILAGE	2	16		16		224 T.	224 T.		736	272	240	
2													
3	HAYLAGE												
4	ALFALFA												
5													
6													
7	RED CLOVER TIMOTHY HAY (HAY ~~& SEED~~)	5	50		50		140 T.	140 T.		600		375	
8													
9	FESCUE (HAY, PAST, SEED)	8	49		49		17,150#	17,150#		1813			
10		9	41		41		68 T.	68 T.		1517			
11	OTHER LEG & GRASS HAY												
12	LEG & GRASS PASTURE												
13	OTHER FORAGES:												
14	IDLE TILLABLE LAND												
15	NON-TILLABLE PASTURE												
16	WOODLAND		22		22								
17	FARMSTEAD, ROADS, ETC.		4		4								
A	TOTAL, THIS PAGE		182		182					$4,666	$272	$615	
B	TOTAL FARM		353	65	418					$12,201	$2,801	$2,294	$790
C	NO. ACRES D.C. 53	1	2	3	4	5	6	7	8	9	10	11	12

	LAND INVENTORY	ACRES			VALUE PER ACRE	TOTAL VALUE		
		OWNED	RENTED	TOTAL		OWNED	RENTED	TOTAL
19	TILLABLE CROPLAND[1]	274		274	600	185,400		185,400
20			65	65	—		39,000	39,000
21	NON-TILLABLE[2]	22		22	350	7700		7700
22								
23	OTHER LAND (ROADS, CREEKS)	4		4	350	1400		1400
24								
D	TOTAL	300	65	365		194,500	39,000	233,500
E	NO. OF ACRES IRRIGATED							
		13	14	15	16	17	18	19

[1] Include all land that is plowable including rotation pasture and hay.

[2] Include non-tillable pasture, timber, etc.

[3] Use fair market value without buildings and improvement.

Line B--Totals from Forms 32 and 33.

Line C--D.C. indicates double-cropping.

CASH FLOW PLANNING

When Using This Year's Records to Plan Next Year's Cash Flow, Consider the Following:

- How will this year's business be different from last year's?
- How will my production cycles vary this year as compared to last?
- What feed, grain, livestock, and supplies will carry over from last year to this year?
- How much will I spend on overhead cost items this year as compared to last and when will they occur?
- How will operating expenses vary this year as compared to last?

QUIZ - SUMMARIZING THE YEAR'S RECORDS

____ 1. Total dollars available and total dollars used during the year should be the same except for the difference in bank balance between the beginning and ending of the year. (True or False)

____ 2. All income and all expenses, both farm and non-farm, should be shown somewhere on the Form 27 - Summary. (True or False)

____ 3. In order to balance livestock numbers for the year, you would include: (Select the correct answers.)

a. beginning and ending inventories
b. purchases and sales during the year
c. number breeding and non-breeding
d. number consumed
e. number born and died

____ 4. If Farmer Jones started the year with 1500 bushels of corn on inventory, raised 3200 bushels during the year, sold 1200 bushels during the year, and ended the year with 560 bushels on inventory, how much corn was fed to livestock? (Place answer to left)

____ 5. Farmer Jones received $1100 patronage dividend allocation; but only $300 in a check. The $800 blance was kept by his co-op for retained earnings. (Select the correct answers.)

a. $1100 is recorded on line 7a (Dividend Receipts)
b. $300 is recorded on line 7a
c. $800 is recorded on line 7a
d. $1100 is recorded on line 47 (Non-Farm Investment)
e. $300 is recorded on line 47
f. $800 is recorded on line 47

CHECKLIST FOR SUMMARIZING RECORDS

1. Complete Form 27 - run totals and make cross-checks for accuracy.

____ Line D totals, January through December = yearly total of lines A + B + 18 + 19.

____ Line H totals, January through December = yearly total of lines E + F + 46 + 47 + FL.

____ Cash balance at the beginning of the year (line J, January) + or - cash difference for the year (line I, total column) should equal cash balance at the end of the year (line N, December)

2. Complete Form 31 - run totals and make cross-checks to see that information is complete and accurate for the year.

____ Livestock numbers are in balance: Number on beginning inventory (from last year's Form 35 or last year's analysis) + number purchased (from Form 9, Expenditures) on closing inventory (from Form 16 or Form 35) + number sold (from Forms 3 and 4, Receipts) + number died (from Form 31) + number consumed (from Form 31)

____ Feed fed is in balance: Beginning inventory of all feed (from Form 17 or last year's analysis) + purchases of all feed (from Form 7, Expenditures) + feed raised (Forms 32 and 33) should be equal to closing inventory of all feed (from Form 17 or Form 35) + amount sold (from Form 2, Receipts) + amount fed (from Form 31)

3. Complete Forms 32 and 33 - run totals and make cross-checks to see that information is complete and accurate for the year.

____ Owned farm acres are in balance: Total owned farm acres (Form 33, line B, Column 2) equals total owned grain crop acres on Form 32, line H + owned forage and other acres on Form 33, line A.

____ Rented farm acres are in balance: Total rented farm acres (Form 33, line B, Column 3) equals total rented grain crop acres on Form 32, line H + rented forage and other acres on Form 33, line A.

____ Land inventory is in balance: Line B, Column 2 - line C (owned) should equal line D, Column 13 on Form 33.

Line B, Column 3 - line C (rented) should equal line D, Column 14 on Form 33.

Line B, Column 4 - line C should equal line D, Column 15 on Form 33.

____ Quantities of crops produced are in balance: Quantity on beginning inventory (from Form 16 or last year's analysis) + quantity raised (from Form 32 or 33) + quantity purchased (from Form 7, Expenditures) should equal quantity sold (from Form 2, Receipts) + quantity fed (from Form 31s) + quantity on closing inventory (from Form 16 or 35).

____ Crop expenses are all accounted for and in balance: Prepaid crop expenses at the beginning of the year from last year's Form 35 (growing wheat expense and herbicides, seed, fertilizer, etc., for summer crops) + crop expenses during the year = expenses allocated to all crops (Forms 32 and 33) + any prepaid expenses for next year's crops including growing wheat (from Form 35).

LIVESTOCK & CROP WORKSHEET

1.	____ :	____ +	____ +	____ =	____ +	____ +	____ +	____
	Livestock Enterprise	(begin inv.)	(no. pur.)	(no. born)	(close inv.)	(no. sold)	(no. dies)	(no. consumed)
2.	____ :	____ +	____ +	____ =	____ +	____ +	____ +	____
	Livestock Enterprise	(begin inv.)	(no. pur.)	(no. born)	(close inv.)	(no. sold)	(no. dies)	(no. consumed)
3.	____ :	____ +	____ +	____ =	____ +	____ +	____ +	____
	Livestock Enterprise	(begin inv.)	(no. pur.)	(no. born)	(close inv.)	(no. sold)	(no. dies)	(no. consumed)

1.	____ :	____ +	____ +	____ =	____ +	____ +	____
	Crop Enterprise	(begin inv.)	(amt. rsd.)	(amt. pur.)	(close inv.)	(amt. fed)*	(amt. sold)
2.	____ :	____ +	____ +	____ =	____ +	____ +	____
	Crop Enterprise	(begin inv.)	(amt. rsd.)	(amt. pur.)	(close inv.)	(amt. fed)*	(amt. sold)
3.	____ :	____ +	____ +	____ =	____ +	____ +	____
	Crop Enterprise	(begin inv.)	(amt. rsd.)	(amt. pur.)	(close inv.)	(amt. fed)*	(amt. sold)
4.	____ :	____ +	____ +	____ =	____ +	____ +	____
	Crop Enterprise	(begin inv.)	(amt. rsd.)	(amt. pur.)	(close inv.)	(amt. fed)*	(amt. sold)
5.	____ :	____ +	____ +	____ =	____ +	____ +	____
	Crop Enterprise	(begin inv.)	(amt. rsd.)	(amt. pur.)	(close inv.)	(amt. fed)*	(amt. sold)

* Check that all feed fed is charged to a livestock enterprise.

ENTERPRISE CLASSIFICATIONS - LIVESTOCK

Beef

20 Beef - Cowherds with calves sold at weaning or within a very short time after weaning (= one month)

21 Beef - Cowherds with calves carried to slaughter weight

22 Beef - Cowherds with calves weaned and then backgrounded to weight ready for feedlot placement

23 Beef - Purchases and feeds out feeder cattle

24 Beef - Mixed cowherds and feeder cattle. We also use this number for other cowherds where the information is not complete or inaccurate and you have a usable hog enterprise for example.

Dairy

25 Dairy - Grade A Dairy Herds

26/27 Dairy - Used for Grade B or where you have beef cows mixed in.

Hog

28 Hog - Farrow - to - Finish Hog Operation

29 Hog - Purchases and feeds out pigs

30 Hog - Produces and sells feeder pigs

31 Hog - Mixed or nonusable operation

Sheep

32 Sheep - Native Flock

33 Sheep - Feeder Herd

34 Sheep - Mixed Herds

Poultry

35 Poultry - Chick Laying Flock

36 Poultry - Pullet Laying Flock

37 Poultry - Raising Pullets

38 Poultry - Mixed Flocks

Miscellaneous

39 - Miscellaneous, used for Horses, etc.

FARM BUSINESS MANAGEMENT ANALYSIS

UNIT III: Adjusting the Farm Business to Increase Profit

Lesson 4: Evaluating Family Living Expenses

A. Review

The previous lesson, closing the Record Book and Planning Cash Flow should be reviewed. Possible conclusions may have included.

1. An analysis of records is only as accurate as the figures that are used.
2. Summarizing the record book will be a simple job if it has been kept up to date correctly during the year.
3. The further you go in the record book before finding errors, the longer it will take to correct them.
4. A checklist should be followed when summarizing the record book to insure that nothing is left out.
5. Cash flow planning is made easier and more accurate when good records have been kept in past years.
6.

B. Objective

To be able to set realistic family goals and to plan a family budget to meet these goals.

C. Motivation

1. Families generally do not realize the amount they are spending for family living during the year. Point out that families in the following situation are often shocked by high family living costs.
    1. High family living expenditures are found in families with high school and/or college age children.
    2. When incomes rise, so do family living expenditures.
    3. The larger the family, the higher the cost of living.
    4. When a new home is built or purchased, family living costs tend to get much higher.
2. Ask each enrollee how much his/her family spends for family living each year. Remind them that family living includes income and social security taxes. Many of them are probably spending more than they realize. As we will be showing later, the average farm family living runs from $18,000 to $22,000 per year on Missouri and Illinois farms where good records were kept.

D. Key Points

Key points for this lesson are as follows:

1. **How do I set family goals?**
2. **What resources are available for family living?**
3. **How does the "average" family spend family living funds?**
4. **What are guidelines for life insurance and health insurance?**
5. **How should we budget for family living?**

E. Introduction of Information

Start the introduction of information by telling the enrollees that we will first look at setting goals for family living and then discuss ways and factors of meeting those goals.

1. **How do I set family goals?**

The first step in exploring family living is in evaluating and setting goals. Use the following guidelines in discussing family goal setting before giving the enrollees an opportunity to set goals for their own families.

a. Explain to the enrollees that writing goals is a two step procedure, first determining and clarifying family objectives and then setting specific goals to help meet those objectives.

(1) Objectives must be clarified. These are material and personal aspirations the family feels are most important. They describe the purpose for the family and farm business. They include things like future income standards, planning for children's education, etc.

(2) Goals are established to assist in reaching these objectives. These goals or standards must be:

(a) specific - they must be clear and easily understood.

(b) measurable - if they are not measurable, it is impossible to know whether or not they are being met.

(c) realistically attainable - make them a challenge within reason.

(d) constructive

(e) represent an improvement over the present level of achievement

If goals do not have these characteristics, they will be useless in guiding family endeavors and priorities of the farm business.

b. The following points should be considered in assisting families in clarifying objectives and establishing goals.

  (1) All family members should participate. If all family members are involved, they will feel more a part of the "team".

  (2) Recognize individual and family differences. Goals will vary between families and individuals within families because of different aspirations and moral attitudes.

  (3) Recognize time periods for goals:

    (a) short term - less than 2 years

    (b) intermediate - 3-5 years

    (c) long-term - over 5 years

  (4) Select goals in terms of available resources. Be realistic.

  (5) Competition between goals is normal. This may be the most important reason to set goals. It allows the family to bring competing ideas together for concensus.

  (6) Objectives and goals must be modified as resources and ideals change. As with other types of planning, goals and objectives should be re-evaluated on a periodic basis.

  (7) Farm and family characteristics that affect goals.

    (a) size of family

    (b) stage in family life cycle

    (c) size and type of farm business

    (d) social, cultural, and religious values

    (e) financial structure of farm business

c. Give the enrollees a copy of HO-14 and HO-15 , worksheets on family objectives and goals. Ask them to spend a few minutes setting objectives and goals for their families and record them on the forms provided. Depending on the group, they may want to share and discuss goals with the other enrollees. If short on time, you may want to hold this activity for the farm visit following this lesson.

2. **What resources are available for family living?**

The objective of this key point is to determine what resources from the farm business are available for family living.

a. Point out to the enrollees that family living expenses can be looked at in several different ways. Some refer to family living expenses as being expendable items, like groceries, insurance, clothes, rent, household goods, entertainment, etc. while others include capital expenditures like house, automobiles, appliances, and other improvements.

Often, farmers have difficulty in determining just how much they spend on family living or have available to spend on family living since they are not on a set salary per month and do not know where they are in terms of spendable income. That is why it is critical to plan a cash flow and to check it periodically throughout the year.

b. Show TM-28 as you discuss the formula for determining cash available for family living. The formula can be defined as follows:

Total Sales + Non-farm Income - Farm Expenses - Debt Retirement - New Investments = Cash Available for Family Living.

A good way to illustrate this formula is to have the enrollees look at last year's balance sheet from their record analysis. Use the cash flow analysis of all funds to look at the total flow of funds in and out of the business and how family living expenditures are summarized at the bottom. TM-29 will help illustrate this with the class.

3. **How does the "average" family spend family living funds?**

A good way to begin looking at your own family living is to see what others are doing both in terms of what other families spend money on and how those expenditures are distributed.

a. Use HO-16 and TM-30/HO-17 to help enrollees look at what others have spent on family living in Missouri and Illinois farms in recent years.

b. Point out to the enrollees that these averages are representative of well-established farmers and that a young couple that is just getting started may be able to get by with less by scrutinizing their family living expenses closely and delaying major purchases until a stable farm business is established.

4. What are guidelines for life insurance, health insurance, and housing?

One of the most difficult things for many farmers to manage is their insurance. It is easy to spend a great deal of money on various kinds of insurance and it becomes very necessary to be knowledgable about insurance and to be able to determine what kind and how much of each type is needed. We will first discuss guidelines on life insurance and then health insurance.

a. Use the following guidelines in your discussion of life insurance.

(1) You can buy all sorts of insurance policies with varying premium rates, but you should remember that straight protection life insurance forms the basis for all other types. When you pay more than the rates for straight protection, you are getting added features such as savings programs, investment programs or endowment funds. Show TM-31 and discuss the purposes of buying life insurance.

Ask enrollees how you decide which type is best for you as a young farmer? Simply figure out what your needs are and pick the insurance that best fills them.

Following are some of the factors that will affect most young farmers' life insurance programs. These should be listed on the chalkboard as they are discussed.

(a) One of the most important is a shortage of cash. This means young farmers are going to have to keep their life insurance premiums as low as possible.

(b) Second, it is doubtful that farmers should use life insurance for investment. The good farmer can usually invest any extra cash in his own operation and get a return better than that from insurance. There is one exception to this rule. It is a good idea to carry some permanent life insurance as a foundation policy.

(c) Third, since the farmer is now making social security payments, he is already paying for a considerable amount of life and retirement insurance.

(d) A good insurance program will do many things for the farmer. It will protect his family if he dies, give him retirement income if he lives, build an emergency fund that is immune from creditors, and provide excellent collateral for loans.

(e) Young farmers generally cannot afford to leave rich widows.

(2) Show TM-32 as you discuss life insurance needs at various points during a lifetime.

The problem in purchasing life insurance is that our needs vary as our lives change through the years. With this in mind, let's consider how the need for life insurance changes as we change.

(a) A young person that is just getting out of school and starting a job might not need much life insurance protection but may want to buy a foundation type policy such as a straight life policy since it would provide protection for parents and would be a good base on which to establish future insurance and loan collateral.

(b) At marriage, a young couple generally does not need much if any, additional life insurance since in the event of death of either spouse, the other will still be young enough to pursue a new life and still has good earning ability. The main thing is to have enough net worth to support and re-establish a surviving spouse in the event of death.

(c) When children are born into the family, life insurance needs become much more crucial than before. In the case of death of one or more parents, there needs to be enough income to support the children to maturity. A farmer has generally paid into social security and will have social security income for the child until age 18. This should be supplemented with enough term life insurance to provide adequate funds to get by on. It is also important to note here that in loss years when farmers have not made any money, they can still make social security payments to maintain protection if they so desire. However, buying term insurance will likely be much cheaper for the same amount of protection. The amount needed, of course, will vary according to how much liquid net worth is available, the occupation and earning ability of surviving spouse, etc.

(d) After children are mature, the need for life insurance generally decreases, since at this point, there is usually enough net worth in the farm business to care for a surviving spouse until retirement and to supplement social security during retirement.

(3) Types of Life Policies - Show TM-33 as you discuss the various types of life insurance policies.

Every large life insurance company offers a large number of policies. Following is a brief description of each of the four main types of policies:

(a) Term Insurance. When a policy provides protection for a fixed or limited number of years - usually 5, 10, 15, or 20 - it is called term insurance. This is the cheapest form of insurance. It provides protection only and builds up no cash reserve.

(b) Ordinary Life. A policy requiring premium payments for life is called an ordinary life policy. It has a relatively low annual premium which remains the same. It provides full protection for the beneficiary. It builds a reserve or cash surrender value slowly. The main disadvantage is that the insured pays premiums throughout life.

(c) Limited Pay Life. A limited-pay life policy provides protection for life, but it is paid for over a certain number of years, usually 20 or 30. The premiums are high enough so that at end of the pay period the reserve is sufficient to carry the policy. Other forms of limited-pay policies are those that are paid up at some future age - for example, at age 65. This limited-pay policy permits the insured to pay for his lifetime protection before reaching extreme old age.

(d) Endowment. An endowment policy promises to pay a stated amount to the insured if he survives the term of the policy (20 years for a 20-year endowment policy), or to the beneficiary if the insured dies within the term.

Enough savings are included in endowment insurance, along with the cost of the protection, so that by the end of the term the stated value of the policy will have been accumulated. When it is paid to the insured person, the contract has been fulfilled. There is no more insurance.

Young farmers who are usually short of cash for operations and yet need protection should consider the type of life insurance that he buys on the basis of cost of the protection received. Term insurance is the cheapest of life insurance protection. Only about one-fourth of the premium for a 20-year endowment policy at age 35 goes for protection - the rest goes to accumulate savings.

(4) Using TM-34/HO-18 and HO-19 , compare the cost of several life insurance policies you have obtained from an agent. The enrollees can look at their own policies at home, but make sure they understand how to determine the cost of the protection they are getting.

b. Health Insurance - Health insurance should be planned to protect against jolting medical bills. It should be geared to insure against the more serious or financially crippling losses that the family might suffer. This is particularly true for young families who have trouble maintaining funds for such purposes.

(1) While showing TM-35, discuss the types of health insurance available.

There are five major types of policies sold by insurance companies:

(a) Hospital

(b) Surgical

(c) General Medical

(d) Major Medical

(NOTE: These help pay medical and hospital costs resulting from illness or accident.)

(e) Loss of Income

(NOTE: To provide income during illness or disability.)

The first three are very similar to local organizations of Blue Cross and Blue Shield which offer extended coverage clauses. Commercial insurance companies often pay benefits direct to individuals; Blue Cross and Blue Shield to the hospitals and doctors.

Major medical expense insurance is designed to take up where ordinary hospital and medical coverage leaves off. Most major medical policies have a deductible clause similar to automobile collision insurance. The policyholder pays the first $1000-$2000 (or similar amount) of charges from sickness and accidents and the insurance usually pays 80 to 100% of all expenses above the deductible amount.

Loss of income insurance provides a cash income to replace part of the regular income lost when the insured is not able to work due to sickness of injury. Generally there is a waiting period before payments start.

The bottom line on health insurance for young farmers is that they need at least major medical to cover expensive illnesses. The cost of major medical coverage, especially with a large deductible, is very reasonable. A young couple can buy major medical with a $1000 deductible for about $300 per year. It may or may not pay to carry general medical, hospital and surgery. If a couple plans several children, general coverage may be desirable.

Obtain prices for several different types of policies and examine the coverage obtained with each type.

5. **How should we budget for family living?**

It is critical that a family works out a budget for two reasons. One, being able to determine how much income is needed for a comfortable living and fulfillment of monetary goals, and the other to distribute available income to the best use.

Give each enrollee a copy of HO-20, Family Living Budget and ask each enrollee to complete a budget. It will be most meaningful if they have kept family living records and have good information with which to budget. It might be a good idea to have them work through it first with no budget constraints and then budget with a very minimum income that is necessary just to "get by". This will give the enrollees an idea of how much leeway they have in cash income variation.

F. Group Discussion

Sufficient time should be allotted for enrollees to discuss and ask questions about topics rising out of the lesson. Reinforce through discussion the idea that setting goals and knowing how much money is needed for family living is the first and most important step in planning for the future. Farmers should be able to enjoy the same standard of living as those who are on a wage scale or salary. Bring out the point that it is generally agreed that farmers' income can be considerably less than that of a typical wage earner and still have an equally good standard of living. A wage earner may have to make as much as 150% of what a farmer does to be equal because of higher rent, food costs, etc.

G. Conclusions

1. Clear objectives and well defined goals provide an outline for guiding the use of available resources, setting priorities and measuring success.

2. All members of the family should be included and participate in planning family goals.

3. When income rises, expenses for family living increase also.

4. Families generally do not realize the amount they spend for family living.

5. A family living budget needs to be developed at least yearly.

Announcements

Next meeting, we will be working with developing the most profitable cropping for our farm.

Social

On-The-Farm Instruction

When visiting enrollees following this lesson, take a look at the family living section of the record book. Hopefully, they have been using this section properly and have a pretty good handle on how their family living expenses are distributed. Evaluate with them their goals and if they are not satisfied with the amount of income they have had available, help them explore methods of increasing it. This will also be a good time to review life, health, property, and liability insurance held by the enrollees and make sure they are adequately protected.

Materials Needed

Instructor

TM-28: Family Living Formula
TM-29: Yearly Flow of Funds
TM-30: Show-Me MIR Family Living
TM-31: Why Life Insurance
TM-32: Life Insurance Needs
TM-33: TYpes of Life Insurance
TM-34: Compare the Cost of Life Insurance
TM-35: Health Insurance
Sample Life and Health Insurance Rate Schedules

Student

HO-14: Worksheet - Family and Farm Business Objectives
HO-15: Worksheet - Family Goals
HO-16: Family Living Averages, Illinois
HO-17: Show-Me MIR Family Living
HO-18: Compare the Cost of Life Insurance
HO-19: Future Value of Annuity of 1
HO-20: Family Living Budget
Missouri Farm Business Analysis Record Book
Prior year's Farm Record Analysis

FAMILY LIVING FORMULA

TOTAL SALES

+

NON-FARM INCOME (INC. MONEY BORROWED)

-

FARM EXPENSES

-

DEBT RETIREMENT

-

NEW INVESTMENTS

=

CASH AVAILABLE FOR FAMILY LIVING

SOURCE OF FUNDS	CASH FLOW	
	FARM PORTION	ALL FUNDS
FUNDS AVAILABLE - BEG. OF PERIOD		743-
CROP SALES	9130	9130
OTHER FARM RECEIPTS	16274	16274
MCHY & BLDG SALES		
LIVESTOCK & LVSTK PRODUCTS	73001	73001
LIVESTOCK HELD FOR BREEDING	1880	1880
MONEY BORROWED THIS YEAR		39441
NON-FARM INCOME		5797
NON-TAXABLE RECEIPTS		
TOTAL SOURCES OF FUNDS	100285	144780
USE OF FUNDS:		
INTEREST	5087	5087
HIRED LABOR		
PESTICIDES	1522	1522
FERTILIZER	2077	2077
SEED	449	449
LIVESTOCK SUPPLIES & SERVICES	1983	1983
UTILITIES	788	788
INSURANCE	250	250
MISCELLANEOUS	3513	3513
TAXES	539	539
CASH RENT & SETTLEMENTS		
MACHINERY REPAIR	1280	1280
MACHINE HIRE	542	542
FUEL & OIL	2752	2752
AUTO-FARM SHARE	815	815
BLDG & FENCE	673	673
DRYING & STORAGE		
CASH OPERATING SUB-TOTAL	22270	22270
FEED PURCHASES	41816	41816
LIVESTOCK PURCHASES	42873	42873
MCHY & BLDG PURCHASES	8971	8971
LAND IMPROVEMENTS		
PRINCIPAL PAYMENTS		16772
CONTRIBUTIONS		
MEDICAL		
LIFE INSURANCE PREMIUMS		
FAMILY LIVING - EXPENDABLE		7357
FAMILY LIVING - CAPITAL		
FAMILY EXPENSE SUB-TOTAL		7357
INCOME, SELF-EMPLOYMENT TAX		
INVESTMENTS		
NON-FARM BUSINESS EXPENSES		
FUNDS AVAILABLE - END OF PERIOD		4724
TOTAL USES OF FUNDS:	115930	144783
RECONCILIATION OF EARNINGS WITH CHANGE IN NET WORTH		
NET FARM INCOME		25116
NON-FARM INCOME - NET		5797
NON-TAXABLE RECEIPTS (EXCLUDING FUND TRANSFERS)		
LESS: FAM EXP SUB-TOTAL (W/DRAWALS & VAL PROD CONSUMED)		8037
INCOME, SELF EMPLOYMENT TAX		
BALANCE (SHOULD APPROXIMATE CHANGE IN NET WORTH)		22876

family living

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1980 FAMILY LIVING - SHOW-ME MIR[1]

	1977	1978	1979	1980	My Family
FAMILIES	21	21	21	21	
ALL FOOD	$3360	$3796	$3730	$3948	
CLOTHING	960	951	1148	1010	
HOUSEHOLD OPERATION	1209	1158	1229	1636	
HOUSEHOLD EQUIPMENT	1037	986	818	832	
HOUSE EXPENSE	340	440	781	853	
PERSONAL ITEMS	1998	2759	2123	2124	
RECREATION	322	618	754	565	
EDUCATION	224	499	571	982	
MEDICINE & DRUGS	238	188	263	209	
MED. INSURANCE	603	674	784	946	
DOCTOR, DENTIST	845	720	621	813	
CHURCH, CHARITY	690	808	828	893	
GIFTS	234	117	312	373	
HOME SHARE AUTO	580	1184	1786	592	
LIFE INSURANCE	1630	1471	1511	1383	
INCOME TAX	1452	853	852	2562	
TOTAL:	$15,722	$17,222	$17,255	$18,719	

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[1] Lloyd Lewellen
Area Farm Management Specialist
Pettis County Extension Service

WHY LIFE INSURANCE ?

PROTECT FAMILY IN CASE OF DEATH

PROVIDE RETIREMENT INCOME

PROVIDE EMERGENCY FUND

PROVIDE LOAN COLLATERAL

INVESTMENT

LIFE INSURANCE NEEDS*

AGE (STAGE IN LIFE)	PROTECTION NEEDED	WHY
0 - 18	FOUNDATION, STRAIGHT LIFE POLICY	PROTECT PARENTS INEXPENSIVE BUILD LOAN VALUE
MARRIAGE	ENOUGH ASSETS TO COVER DEBTS AND SOME SURPLUS	HELP RE-ESTABLISH SURVIVING SPOUSE
CHILDREN	TERM INSURANCE POLICY (CONVERTIBLE) SOCIAL SECURITY	SUPPORT FAMILY UNTIL CHILDREN ARE GROWN
40-RETIREMENT	ENOUGH ASSETS TO COVER DEBTS AND PROVIDE INCOME	SUPPORT SURVIVING SPOUSE UNTIL RETIREMENT

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*These guidelines are based on estimates and generalities and naturally must be localized for the individual situation.

TYPES OF LIFE INSURANCE

TERM

- Inexpensive
- Life Protection Only
- Straight or Decreasing

PREMIUM OF APPROX. $3.33/$1000 COVERAGE AT AGE 25 FOR 15 YEAR STRAIGHT TERM (CONVERTIBLE)

ORDINARY OR STRAIGHT LIFE

- Cash Value
- Life Protection
- Pay Premiums Until Death

PREMIUM OF APPROX. $7.75/$1000 COVERAGE AT AGE 25 (NON-SMOKER)

LIMITED PAY LIFE

- Pay premiums for Set Time (20 yrs., 30 yrs., age 65, etc.)
- Cash Value
- Life Protection

ENDOWMENT

- Pay Premiums for Endowment Period (20 yrs., etc.)
- Saving Included
- Life Protection
- Matures at End of Endowment Period

PREMIUM OF APPROX. $17.00/$1000 COVERAGE AT AGE 25

COMPARE THE COST OF LIFE INSURANCE

TYPE POLICY and/or COMPANY	(1) ANNUAL PREMIUM	(2) OPPORTUNITY COST OF $1 @ _____ %	(3) OPPORTUNITY COST OF POLICY	(4) PROJECTED CASH VALUE AT AGE ___	(5) COST OF PROTECTION

As an example, if a $10,000 whole life policy can be purchased at age 25 for $170 annual premiums; 5% is the estimated interest cost; and the cash value at age 65 for the policy is $11,420; the cost of $10,000 protection for 40 years is $9114.30. (see below)

Whole Life	$170[1]	$120.79[2]	$20534.30[3]	$11420.00[4]	$9114.30[5]

1. Annual premium on policy - get from insurance agent.

2. The number of dollars you would have in a savings account if you put $1.00 per year in for 40 years @5% and it was compounded annually. Use Future Value Table, HO-19.

3. The number of dollars you would have in a savings account if you put $170.00 per year in for 40 years @5% and it was compounded annually. In this table, column 3 is arrived at by multiplying column 1 x column 2.

4. The estimated or projected cash value - get this information from the policy or the insurance agent.

5. Net cost of protection - subtract column 4 from column 3.

(Note: The interest rate used in the Future Value Table is important - be realistic on what you can earn and/or pay. Refer to MU Guide #450.)

HEALTH INSURANCE

HOSPITAL SURGICAL GENERAL MEDICAL	PAYS ON COMMON ILLNESSES.
MAJOR MEDICAL →	USUALLY PAYS 80-100% ON EXTENDED ILLNESSES.
DISABILITY →	PROVIDE INCOME DURING ILLNESS.

WORKSHEET - Family and Farm Business Objectives

Name ______________________ Date ______________

Address ______________________________________

What do you, as a family, consider most important for your future welfare, happiness, and security? Is it community involvement, a retirement plan, college education, a comfortable home, or a partnership farming operation? Clarifying the purposes of family endeavors will provide a guide for setting priorities and evaluating success of the farm business.

Write below the things you want for your family and farm business. Identify them in order of importance. Be sure to involve all family members in making these decisions.

Family	
Short-term (1-2 years)	
Intermediate-term (3-5 years)	
Long-term (over 5 years)	
Farm Business	
Short-term	
Intermediate-term	
Long-term	

WORKSHEET - Family Goals

Name ______________________________ Date ______________________

Address ____

Using your general objectives and the headings listed below, write specific goals which will provide a satisfactory level of achievement toward each objective. Remember, these goals will be used to measure success of the farm business; therefore, they should be carefully written and updated annually.

Specify time period; resource requirements including dollars saved, invested, contributed; items desired; and other descriptive statements which qualify and make the goal measurable.

Family Goals	Short-term	Intermediate-term	Long-term
Home:			
Health and Nutrition:			
Education:			
Social and Recreation:			
Community Involvement: (religious, charity, civic, etc.)			
Other:			

FBMA III
HO-15
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Farm and Family Sources and Uses of Dollars, Average per Family, 1977-80, and Average Living Expenditures, 1980, High-Third and Low-Third Families, 178 Recordkeeping Farms, FBFM, Central Illinois

	All records, average per farm				Family of 3-5, 1980	
	1980	1979	1978	1977	High-third	Low-third
NUMBER IN SAMPLE	178	206	157	118	41	40
TILLABLE ACRES FARMED	602	596	599	597	722	514
ACRES OWNED	120	140	136	127	157	97
LIABILITIES, JANUARY 1,	$154,467	$164,604	(a)	(a)	$201,086	$105,283
LIABILITIES, DECEMBER 31	176,889	204,714	(a)	(a)	242,833	107,270
SOURCES OF DOLLARS						
Nonfarm taxable income	$ 6,620	$ 6,537	$ 6,822	$ 7,581	$ 6,442	$ 5,198
Money borrowed	101,424	134,584	92,001	92,222	143,428	56,020
Farm receipts	140,892	147,324	135,944	119,957	172,681	105,873
USE OF DOLLARS						
Interest paid	$ 14,359	$ 12,497	$ 9,157	$ 7,120	$ 18,823	$ 9,801
Cash operating expenses	83,684	87,549	78,385	64,742	99,653	60,277
Capital farm purchases	18,155	31,093	27,949	31,012	24,257	14,047
Payments on principle	$ 79,002	$ 94,474	$ 72,605	$ 64,528	$101,681	$ 54,035
Income and Social Security taxes	6,130	8,425	8,946	9,551	7,627	4,947
Net new savings and investment	21,171	28,199	13,067	17,110	35,578	7,898
Nonfarm business expenses	3,003	2,733	3,220	4,420	1,796	2,763
LIVING EXPENSES						
Contributions	$ 1,142	$ 1,075	$ 1,068	$ 1,013	$ 1,803	$ 668
Medical	2,219	1,973	1,814	1,662	2,571	1,845
Insurance, life, and disability	1,651	2,345	1,697	1,869	2,578	1,133
Expendables	16,193	14,924	13,607	12,915	23,861	10,725
Total noncapital expenses	$ 21,205	$ 20,317	$ 18,186	$ 17,459	$ 30,813	$ 14,371
Capital	2,227	3,169	3,241	4,078	2,323	1,952
Total, living expenses	$ 23,432	$ 23,486	$ 21,427	$ 21,527	$ 33,136	$ 16,323
TOTAL, NONCAPTIAL LIVING EXPENSES, PERCENT CHANGE	4.3	11.7	4.2	.7	...	...

(a) Data not available

D. F. Wilken, Extension Specialist Farm Management
University of Illinois

FUTURE VALUE OF ANNUITY OF 1

Year	4%	5%	6%	7%	8%
1	1.0000	1.0000	1.0000	1.0000	1.0000
2	2.0400	2.0500	2.0600	2.0700	2.0800
3	3.1216	3.1525	3.1836	3.2149	3.2464
4	4.2464	4.3101	4.3746	4.4399	4.5061
5	5.4163	5.5256	5.6370	5.7507	5.8666
6	6.6329	6.8019	6.9753	7.1532	7.3359
7	7.8982	8.1420	8.3938	8.6540	8.9228
8	9.2142	9.5491	9.8974	10.2598	10.6366
9	10.5827	11.0265	11.4913	11.9779	12.4875
10	12.0061	12.5778	13.1807	13.8164	14.4865
11	13.4863	14.2067	14.9716	15.7835	16.6454
12	15.0258	15.9171	16.8699	17.8884	18.9771
13	16.6268	17.7129	18.8821	20.1406	21.4952
14	18.2919	19.5986	21.0150	22.5504	24.2149
15	20.0235	21.5785	23.2759	25.1290	27.1521
16	21.8245	23.6574	25.6725	27.8880	30.2242
17	23.6975	25.8403	28.2128	30.8402	33.7502
18	25.6454	28.1323	30.9056	33.9990	37.4502
19	27.6712	30.5390	33.7599	37.3789	41.4462
20	29.7780	33.0659	36.7855	40.9954	45.7619
21	31.9692	35.7192	39.9927	44.8651	50.4229
22	34.2479	38.5052	43.3922	49.0057	55.4567
23	36.6178	41.4304	46.9958	53.4361	60.8932
24	39.0826	44.5019	50.8155	58.1766	66.7647
25	41.6459	47.7270	54.8645	63.2490	73.1059
26	44.3117	51.1134	59.1563	68.6764	79.9544
27	47.0842	54.6691	63.7057	74.4838	87.3507
28	49.9675	58.4025	68.5281	80.6976	95.3388
29	52.9662	62.3227	73.6397	87.3465	103.9659
30	56.0849	66.4388	79.0581	94.4607	113.2832
31	59.3283	70.7607	84.8016	102.0730	123.3458
32	62.7014	75.2988	90.8897	110.2181	134.2135
33	66.2095	80.0637	97.3431	118.9334	145.9506
34	69.8579	85.0669	104.1837	128.2587	158.6266
35	73.6522	90.3203	111.4347	138.2368	172.3168
36	77.5983	95.8363	119.1208	148.9134	187.1021
37	81.7022	101.6281	127.2681	160.3374	203.0703
38	85.9703	107.7095	135.9042	172.5610	220.3159
39	90.4091	114.0950	145.0584	185.6402	238.9412
40	95.0255	120.7997	154.7619	199.6351	259.0565
41	99.8265	127.8397	165.0476	214.6095	280.7810
42	104.8195	135.2317	175.9505	230.6322	304.2435
43	110.0123	142.9933	187.5075	247.7764	329.5830
44	115.4128	151.1430	199.7580	266.1208	356.9496
45	121.0293	159.7001	212.7435	285.7493	386.5056
46	126.8705	168.6851	226.5081	306.7517	418.4260
47	132.9453	178.1194	241.0986	329.2243	452.9001
48	139.2632	188.0253	256.5645	353.2700	490.1321
49	145.8337	198.4266	272.9584	378.9989	530.3427
50	152.6670	209.3479	290.3359	406.5289	573.7701

HO-19 (cont'd)
FBMA III

FUTURE VALUE OF ANNUITY OF 1 (continued)

Year	9%	10%	11%	12%	13%	14%
1	1.000	1.000	1.000	1.000	1.000	1.000
2	2.090	2.100	2.110	2.120	2.130	2.140
3	3.278	3.310	3.342	3.374	3.407	3.440
4	4.573	4.641	4.709	4.779	4.850	4.921
5	5.985	6.105	6.228	6.353	6.480	6.610
6	7.523	7.716	7.913	8.115	8.323	8.536
7	9.200	9.487	9.783	10.089	10.405	10.730
8	11.028	11.436	11.859	12.300	12.757	13.233
9	13.021	13.579	14.164	14.776	15.416	16.085
10	15.193	15.937	16.722	17.549	18.420	19.377
11	17.560	18.531	19.561	20.655	21.814	23.045
12	20.141	21.384	22.713	24.133	25.650	27.271
13	22.953	24.523	26.212	28.029	29.985	32.089
14	26.019	27.975	30.095	32.393	34.883	37.581
15	29.361	31.772	34.405	37.280	40.417	43.842
16	33.003	35.950	39.190	42.753	46.672	50.980
17	36.974	40.545	44.501	48.884	53.739	59.118
18	41.301	45.599	50.396	55.750	61.725	68.394
19	46.018	51.159	56.939	63.440	70.749	78.969
20	51.160	57.275	64.203	72.052	80.947	91.025
24	76.790	88.497	102.174	118.155	136.831	158.659
25	84.701	98.347	114.413	133.334	155.620	181.871
30	136.308	164.494	199.021	241.333	293.199	356.787
36	236.125	299.127	380.164	484.463	618.749	791.673
40	337.882	442.593	581.826	767.091	1013.704	1342.025
48	684.280	960.172	1352.700	1911.590	2707.633	3841.475
50	815.084	1163.909	1668.771	2400.018	3459.507	4994.521

FAMILY LIVING BUDGET

A. EXPENSES

1. Federal Income Tax (monthly)[1] $ ________
2. State Income Tax (monthly)[2] $ ________
3. Social Security (9.65% of B3) $ ________
4. Hospital and Life Insurance $ ________
5. Housing (Max. of 25% of B3) $ ________
6. Food (Max. of 22% of B3) $ ________
7. Life Insurance $ ________
8. Hospital Insurance $ ________
9. Car Payments $ ________
10. Clothing $ ________
11. Church, Charity $ ________
12. Other $ ________
13. Total Expenses $ ________

B. INCOME NEEDED

1. Off-Farm Income/Mo. $ ________
2. Farm Income/Mo. Needed $ ________
3. Total Income (should at least equal expenses) $ ________

[1] Use Federal Tax Schedules

[2] 1. Item A1 & A2 ________
2. Deduct $2,300 or $3,400 ________
3. Deduct B1 x 12 ________
4. Deduct $1,200 or $2,400 ________
5. Deduct $400 Per Other Dep ________
6. Balance ________
7. 6% of Line 6 = State Tax ________
8. Divide by 12 ________

FARM BUSINESS MANAGEMENT ANALYSIS

UNIT III: Adjusting the Farm Business to Increase Profit

LESSON 5: Determining the Most Profitable Cropping System

A. Review

The previous lesson, Evaluating Family Living Expenses, should be reviewed. Possible conclusions may have included:

1. Clear objectives and well defined goals provide an outline for guiding the use of available resources, setting priorities and measuring success.
2. All members of the family should be included and participate in planning family goals.
3. When income rises, expenses for family living increase also.
4. Families generally do not realize the amount they spend for family living.
5. A family living budget needs to be developed at least yearly.
6.

B. Objective

To be able to choose the cropping system which maximizes profits while maintaining acceptable soil loss levels.

C. Motivation

Land is the basic resource and the primary source of income on many Missouri farms. For example, the farm sales and returns for the "average" FBMA enrollee in 1981 are summarized on TM-36. Although sales of crops and livestock were about equal ($45,036 vs. $42,842), when raised feed fed was changed to livestock and credited to crops and inventories adjusted, crop returns accounted for approximately four times the livestock returns ($60,802 vs. $15,015).

The three most important factors that effect total crop returns are: (1) Crop yields, (2) Prices Received, and (3) Percent of Land in high profit crops. This lesson will study the selection of crops to identify the crops and acreages for our individual farms. One other point: we will assume that soil productivity must be maintained with the cropping system we select. If a cropping system is selected with a high return in the short run, but results in excessive soil erosion and/or depletion of fertility, the "long run" returns will be lowered. What we are doing in this situation is "selling off the inventory."

Our goal in this lesson is to choose the most profitable cropping system that maintains soil fertility.

D. Key Points

1. **What is the income over variable costs for the different crops on my farm?**

2. **What is the annual soil loss for my tentative cropping system?**

3. **What is the most profitable cropping system for my farm that will maintain soil fertility?**

E. Introduction of Information

Start the introduction of information by telling the enrollees that the first step we will complete is to determine the income over variable costs for different crops on my farm

1. **What is the income over variable costs for different crops on my farm?**

   Distribute copies of HO-21 to HO-28. Point out that these budgets from Manual 75, were prepared in 1981, are averages, and may not apply to any of our individual farms. Each enrollee needs to complete the column "My Farm" for all crops grown on their farm. (It may be necessary to show the effect of growing crops such as corn on marginal corn land - yield lowered, but costs about the same - and illustrate that income over variable costs in this situation may be lower than the income for mixed hay or pasture. The following suggestions may help:

   a. Items of variable costs should be changed to reflect actual situations. As an example, one enrollee may scratch out custom machine hire. Another may add cash rent, etc.

   b. Quantities and prices should be from the enrollee's analyzed records.

   c. A separate budget should be prepared for each crop for each rental agreement. As an example, a farmer that owns corn land, rents corn land on a 50% share, and cash rents corn land would need to prepare three budgets. Each budget reflects only the enrollee's share of the income and variable costs.

   d. Let the enrollees summarize their tentative cropping plans on HO-29.

2. **What is the annual soil loss for the tentative cropping system?**

   Start the study of this key point by showing TM-37.

   a. Work an example of a field in Central Missouri planted to continous corn on Grundy soil with a 5% slope, 600 foot slope lenth, fall plowed, and no erosion control practices by first putting the formula from TM-37 on the chalkboard. $A = R \times K \times LS \times C \times P$

b. Distribute HO-30 (R factors and K/T factors). Explain that the R factor is a factor for rainfall intensity and duration identified by three areas of the state. Since our example is for central Missouri we will use 225 for R. Also, explain that the K factor is a measure of the erodibility of various soil types (the T factor on the chart is the maximum tons of soil that can be lost each year and maintain soil fertility). In the example, Grundy soil has a K factor of .37. (K and T factors for all soils can be obtained from the SCS office).

c. Distribute HO-31 which is the LS factor or the factor considering length and steepness of slope. In our example, the slope length was 600 feet and the steepness was 5%. At the intersection of the column for 5% and length of 600 feet is the factor 1.4.

d. Distribute HO-32. First, explain the four tables on the handout. In our example of continuous corn with fall plowing, the "C" factor is .42.

e. Distribute HO-33. Explain that the "P" factor is used when conservation measures as contouring, etc. are used. If none are used, a factor of 1.0 is included in the formula as in our example.

f. Work the equation using the factors entered in each step:

A = R x K x LS x C x P
A = 225 x .37 x 1.4 x .42 x 1.0
A = 48.95

This indicates that this cropping system is losing 48.95 tons of soil per year while the maximum allowable to maintain soil fertility was 3.0 (16 times the loss that is allowable). Show TM-38 to illustrate the effect of this lesson.

g. Show the class how to determine what can be done to get the soil loss to a "tolerable" level. First, let the class identify some alternatives which might include:

(1) terracing - if this was done, the "P" factor would be .25 instead of 1.0 and the "LS" factor would be .6 instead of 1.4 if the length of slope was now 150 feet.

(2) use chisel plow and two discings instead of fall plow. As an example, with 6,000 pounds crop residue, the chisel plow would reduce it approximately 30% ("P" Factor - Table C) or 4200 pounds remaining. Each discing reduces it 50% or to 2100 and to 1050 pounds. This is about 1/2 ton and Table C indicates the "P" factor to .35.

(3) change the cropping plan which is reflected in the "C" factor in Table A. In the example, continuous corn, fall planted, has a factor of .42. Changing to a corn, corn, wheat, clover (CCWM) rotation drops the "C" factor to .16.

(4) for the class situation, let's assume the farmer does not want to terrace or use contouring, but is interested in using the chisel plow and 2 discings. We can solve the equation to determine the needed "C" factor to keep soil loss at a "tolerable" level as follows:

$$C = \frac{A}{R \times K \times LS \times P}$$

$$.026 = \frac{3}{225 \times .37 \times 1.4 \times 1.0}$$

Since, in this example, the farmer was going to use chisel plowing and 2 discings which reduced the "C" factor by .35, we can determine the "C" factor from the cropping system by .35x = .026 or x = .026 ÷ .35 or .074, a rotation as corn, oats, wheat, meadow, meadow would need to be used. If the farmer would terrace, the "P" factor would be .25 instead of 1.0 which gives:

$$.103 = \frac{3}{225 \times .37 \times 1.4 \times .25}$$

or, with the same tillage method as above (.103 ÷ .35 = .29), the cropping system could be corn, corn, wheat and cover

Several members of the class may want to calculate soil loss equations for their individual situations to be sure they understand the procedure.

3. **What is the most profitable cropping system for my farm that will maintain soil fertility?**

Start the discussion by pointing out that if we had our entire farm in continuous grass, our soil loss would be "tolerable," but in most areas in Missouri the profit would be too low. On the other hand, many areas of Missouri would have too much soil loss with continuous corn and no conservation practices. How do we develop the most profitable cropping system that will maintain soil fertility? The following steps may work:

a. Let one or two enrollees use their cropping plan developed in Key point 1 and determine the soil loss. If the plan has a "tolerable" loss, and if the most profitable, it is finished.

b. Most plans will need to be reworked to have a "tolerable" loss.

F. Group Discussion

Encourage discussion relating to the trade-offs between profitability and soil loss and ideas that will work in the local community such as less tillage, etc. and still maintain an intensive cropping program.

G. Conclusions

Conclusions that might be listed include:

1. Budgets for crops should be developed using data from each individual's analysis.
2. A profitable cropping system should be developed prior to doing the livestock system.
3. Cropping systems must have "tolerable" soil losses.
4. Combining profitability and soil losses is the key to a good cropping program.
5.
6.

Announcements

Next meeting, we will discuss the selection of livestock. It would be best to have the cropping plans developed prior to then and a completed HO-29 brought to class.

Social

On-the-Farm Instruction

Ask each couple to work on HO-21 through HO-29 prior to your visit. During the visit, these should be completed, a soil loss equation worked, and a final cropping plan selected.

Materials Needed

Instructor

TM-36: 1981 FBMA Farm Returns & Sales
TM-37: Soil Loss Equation
TM-38: Effect of Excessive Erosion
K & T Factors for Soils in the area from SCS

Students

HO-21: Corn Budgets
HO-22: Grain Sorghum Budgets
HO-23: Soybean Budgets
HO-24: Wheat Budgets
HO-25: Corn Silage Budgets
HO-26: Alfalfa Hay Budgets
HO-27: Mixed and Grass Hay Budgets
HO-28: Pasture Budgets
HO-29: Summary: Cropping System
HO-30: R & K Factors
HO-31: LS Factor
HO-32: C Factor
HO-33: P Factor

1981 FBMA FARM SALES

CROPS = $45,036

LIVESTOCK = 42,842

OTHER = 7,713

1981 FBMA FARM RETURNS*

CROP RETURNS = $60,802

LIVESTOCK RETURNS (ABOVE FEED & COST OF LIVESTOCK) = 15,015

CUSTOM WORK = 1,970

OTHER RECEIPTS = 3,016

*FEED FED TO LIVESTOCK CHARGED AGAINST LIVESTOCK AND CREDITED TO CROPS. CHANGE IN INVENTORIES CREDITED.

SOIL LOSS EQUATION

$$A = R \cdot K \cdot LS \cdot C \cdot P$$

A = SOIL LOSS IN TONS PER ACRE

R = RAINFALL FACTOR

K = SOIL ERODIBILITY FACTOR

LS = LENGTH AND STEEPNESS OF SLOPE

C = CROPPING MANAGEMENT FACTOR

P = EROSION CONTROL PRACTICE FACTOR

EFFECT OF EXCESSIVE EROSION

1" TOPSOIL ON 1 ACRE WEIGHS 160 TONS

46 TONS/YEAR = 1" TOPSOIL IN 3½ YEARS

2" LOSS OF TOPSOIL = 15% YIELD REDUCTION

4" LOSS OF TOPSOIL = 22% YIELD REDUCTION

6" LOSS OF TOPSOIL = 30% YIELD REDUCTION

12" LOSS OF TOPSOIL = 75% YIELD REDUCTION

A CROPPING SYSTEM WITH 46 TONS LOSS WOULD GIVE 15% YIELD REDUCTION IN SEVEN YEARS.

IN ADDITION:

A. NUTRIENT LOSS IS VALUED AT ABOUT $4.00/TON.
B. LESS WATER HOLDING CAPACITY.
C. INCREASED POWER COSTS TO PREPARE SEEDBED.
D. GULLIES AND DITCHES CAN'T BE FARMED.

TABLE C-2. CORN BUDGETS

				IRRIGATED	MY FARM
1.	Yield, bu per acre (13% moisture)	80	100	140	____
2.	Price per bushel[1]	$ 3.40	$ 3.40	$ 3.40	$____
3.	Gross income per acre	$272.00	$340.00	$476.00	$____
4.	VARIABLE COSTS PER ACRE:				
5.	Seed ($.75 per 1,000)	$ 13.50	$ 15.00	$ 18.00	$____
6.	Fertilizer and lime[2]	43.50	57.50	71.00	____
7.	Crop chemicals and supplies	17.50	17.50	17.50	____
8.	Custom machine hire	5.00	5.00	5.00	____
9.	Machinery: fuel, oil, repairs	28.00	30.00	34.00	____
10.	Hauling, drying, and storage @ $.20	16.00	20.00	28.00	____
11.	Miscellaneous @ 8%	10.00	11.50	14.00	____
12.	Other: irrigation fuel, repairs and maintenance	--	--	28.00	____
13.	Interest[3]	9.50	11.00	15.00	____
14.	TOTAL VARIABLE COSTS[4]	$143.00	$167.50	$230.50	$____
15.	INCOME OVER VARIABLE COSTS[5]	$129.00	$172.50	$245.50	$____
16.	Labor hours	3.5 hrs.	3.6 hrs.	4.2 hrs.	____ hrs.

[1] Price is expected 5-year average annual price at the farm after storage.

[2] Fertilizer costs are estimated: N (anhydrous) @ 8¢, N (dry) @ 30¢, P_2O_5 @ 30¢, and K_2O @ 15¢ per pound for typical application rates. Annual share of liming cost is estimated at $4.00 per acre. 80 bu. yield: 110-40-50. 100 bu. yield: 130-60-80. Irrigated corn (140 bu. yield): 180-70-90.

[3] Interest charge is computed at 14% per annum on one-half of Items 5 through 12.

[4] Other costs include: labor and ownership (fixed costs). See Table C-10.

[5] Income to pay land, machinery, facilities, labor, and management.

TABLE C-3. GRAIN SORGHUM BUDGETS

				MY FARM
1.	Yield, bu. per acre (13% moist.)	80	100	
2.	Price per bushel[1]	$ 3.10	$ 3.10	$
3.	Gross income per acre	$248.00	$310.00	$
4.	VARIABLE COSTS PER ACRE:			
5.	Seed	$ 4.50	$ 4.50	$
6.	Fertilizer and lime[2]	39.50	54.00	
7.	Crop chemicals and supplies	13.00	13.00	
8.	Custom machine hire	4.00	4.00	
9.	Machinery: fuel, oil, repairs	23.00	25.00	
10.	Hauling, drying, and storage @ $.20/bu.	16.00	20.00	
11.	Miscellaneous @ 8%	8.00	9.50	
12.	Other: ____________	--	--	
13.	Interest[3]	7.50	9.00	
14.	TOTAL VARIABLE COSTS[4]	$115.50	$139.00	$
15.	INCOME OVER VARIABLE COSTS[5]	$132.50	$171.00	$
16.	Labor hours	3.5 hrs.	3.6 hrs.	hrs.

[1] Price is expected 5-year average annual price at the farm after storage.

[2] Fertilizer costs are estimated: N (anhydrous) @ 18¢, N (dry) @ 30¢, P_2O_5 @ 30¢, and K_2O @ 15¢ per pound for typical application rates. Annual share of liming cost is estimated at $4.00 per acre. 80 bu. yield: 90-40-50. 100 bu. yield: 110-60-80.

[3] Interest charge is computed at 14% per annum on one-half of Items 5 through 12.

[4] Other costs include: labor and ownership (fixed costs). See Table C-10.

[5] Income to pay land, machinery, facilities, labor, and management.

TABLE C-4. SOYBEAN BUDGETS

				DOUBLE CROP	MY FARM
1.	Yield, bu. per acre	28	34	20	
2.	Price per bushel[1]	$ 8.00	$ 8.00	$ 8.00	$
3.	Gross income per acre	$224.00	$272.00	$160.00	$
4.	VARIABLE COSTS PER ACRE:				
5.	Seed (55 lbs. per acre)	$ 12.00	$ 12.00	$ 12.00	$
6.	Fertilizer and lime[2]	14.50	16.00	13.00	
7.	Crop chemicals and supplies	20.00	20.00	20.00	
8.	Custom machine hire	--	--	--	
9.	Machinery: fuel, oil, repairs	30.00	30.00	25.00	
10.	Hauling and storage @ $.15	4.00	5.00	3.00	
11.	Miscellaneous @ 8%	6.50	6.50	6.00	
12.	Other: ____________	--	--	--	
13.	Interest[3]	6.00	6.50	5.50	
14.	TOTAL VARIABLE COSTS[4]	$ 93.00	$ 96.00	$ 84.50	$
15.	INCOME OVER VARIABLE COSTS[5]	$131.00	$176.00	$ 75.50	$
16.	Labor hours	3.2 hrs.	3.4 hrs.	2.5 hrs.	________hrs.

[1] Price is expected 5-year average annual price at the farm after storage.

[2] Fertilizer costs are estimated: N (anhydrous) @ 18¢, N (dry) @ 30¢, P_2O_5 @ 30¢, and K_2O @ 15¢ per pound for typical application rates. Annual share of liming cost is estimated at $4.00 per acre. 28 bu. yield: 0-18-35. 34 bu. yield: 0-20-40. 20 bu. yield: 0-15-30.

[3] Interest charge is computed at 14% per annum on one-half of Items 5 through 12.

[4] Other costs include: labor and ownership (fixed costs). See Table C-10.

[5] Income to pay land, machinery, facilities, labor, and management.

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TABLE C-5. WHEAT BUDGETS

				MY FARM
1.	Yield, bu. per acre (13% moist.)	40	50	
2.	Price per bushel[1]	$ 4.30	$ 4.30	$
3.	Gross income per acre	$172.00	$215.00	$
4.	VARIABLE COSTS PER ACRE			
5.	Seed @ 1.5 bu./acre	$ 12.00	$ 12.00	$
6.	Fertilizer and lime[2]	35.00	40.00	
7.	Crop chemicals and supplies	--	--	
8.	Custom machine hire	5.00	5.00	
9.	Machinery: fuel, oil, repairs	16.00	18.00	
10.	Hauling and storage @ $.15/bu.	6.00	7.50	
11.	Miscellaneous @ 8%	6.00	6.50	
12.	Other:	--	--	
13.	Interest[3]	5.50	6.00	
14.	TOTAL VARIABLE COSTS[4]	$ 85.50	$ 95.00	$
15.	INCOME OVER VARIABLE COSTS[5]	$ 86.50	$120.00	$
16.	Labor hours	1.5 hrs.	1.6 hrs.	hrs.

[1] Price is expected 5-year average annual price at the farm after storage.

[2] Fertilizer costs are estimated: N (anhydrous) @ 18¢, N (dry) @ 30¢, P_2O_5 @ 30¢, and K_2O @ 15¢ per pound for typical application rates. Annual share of liming cost is estimated at $4.00 per acre. 40 bu. yield: 50-35-35. 50 bu. yield: 60-40-40. For wheat following soybeans, 40 bu. yield: 30-35-35 and 50 bu. yield: 40-40-40.

[3] Interest charge is computed at 14% per annum on one-half of Items 5 through 12.

[4] Other costs include: labor and ownership (fixed costs). See Table C-10.

[5] Income to pay land, machinery, facilities, labor, and management.

TABLE C-6. CORN SILAGE BUDGETS

Description of Production: 5-16" plow; 16½' disk; fertilizer custom spread;
6-30" row planter and cultivator; 27' sprayer;
2-row silage cutter; hauled by tractor and wagons.

		OWNER HARVESTED[1]	CUSTOM HARVESTED[1]	MY FARM
	Field yield at harvest	15 T.	15 T.	
1.	Yield, tons per acre (70% moisture)	13	13	________
2.	Price per ton	$ 25.00	$ 25.00	$________
3.	Gross income per acre	$325.00	$325.00	$________
4.	VARIABLE COSTS PER ACRE:			
5.	Seed (50¢ per 1,000)	$ 15.00	$ 15.00	$________
6.	Fertilizer and lime[2]	75.00	75.00	________
7.	Crop chemicals and supplies	17.00	17.00	________
8.	Custom machine hire	--	67.00	________
9.	Machinery: fuel, oil, and repairs	43.00	21.00	________
10.	Miscellaneous	12.00	10.00	________
11.	Other: ________________	--	--	________
12.	Interest[3]	11.00	14.00	________
13.	TOTAL VARIABLE COSTS	$173.00	$219.00	$________
14.	INCOME OVER VARIABLE COSTS	$152.00	$106.00	$________
15.	Labor hours	10 hrs.	4 hrs.	________hrs.

[1] A range is given in per acre variable costs and in returns above variable costs to approximate difference between owner harvest (own labor and owned equipment) and complete custom harvest. Fixed ownership costs of owned equipment as well as operator provided labor are not included in the variable costs of owner-harvested silage.

[2] Fertilizer costs include a $4 annual per acre lime charge as well as a 180-70-150 application (at 18¢, 30¢, 30¢, and 18¢ per pound respectively for anhydrous N, dry N, P_2O_5, and K_2O) along with application costs.

[3] Interest computed at 14% per year on half of Lines 5 through 11.

TABLE C-7. ALFALFA HAY BUDGETS

Description of Production: 2.5 T. two cuttings; 4 T. three cuttings; 7' mower; 7' hay conditioner; side delivery rake; square baler; fertilizer custom spread; cost of establishment amortized over 5-year period.

Field yield at harvest	3.0 T.	5.0 T.	MY FARM
1. Yield, tons per acre (11% moisture)	2.5	4.0	______
2. Price per ton	$ 72.00	$ 72.00	$______
3. Gross income per acre	$180.00	$288.00	$______
4. VARIABLE COSTS PER ACRE:[1]			
5. Establishment cost	$ 14.00	$ 14.00	$______
6. Fertilizer and lime[2]	$ 32.00	$ 56.00	______
7. Crop chemicals and supplies	$11 or $5	$16 or $6	______
8. Custom machine hire	0 or $82	0 or $132	______
9. Machinery: fuel, oil, and repairs	$28 or $3	$44 or $3	______
10. Storage	--	--	______
11. Miscellaneous	2.00	2.00	______
12. Other: ______________	--	--	______
13. Interest[3]	$6 or $10	$9 or $15	______
14. TOTAL VARIABLE COSTS	$93 or $148	$141 or $228	$______
15. INCOME OVER VARIABLE COSTS	$87 or $32	$147 or $60	$______
16. Labor hours	6 or 2 hrs.	9 or 3 hrs.	______hrs.

[1] Ranges are given in variable costs and returns above variable costs to approximate differences between harvest by owner with owned equipment (left side) and complete harvest by custom operator (right side). Fixed machinery costs (not included above) are much higher for the owner harvest option, as are hours of labor. Conventional, rectangular, twine-tied bales are assumed.

[2] Fertilizer costs reflect annual lime costs of $5 per acre as well as 0-30-100 and 0-50-200, respectively, for 3 and 5 ton yields, priced at 30¢ and 18¢ per pound of P_2O_5 and K_2O plus cost of application.

[3] Interest computed at 14% per year on half of Lines 5 through 12.

TABLE C-8. MIXED AND GRASS HAY BUDGETS

Description of Production: Two cuttings; 7' mower; 7' hay conditioner; side delivery rake; square baler; fertilizer custom spread; establishment cost amortized over 5 years.

Field yield at harvest	GRASS + LEGUME 3 T.	GRASS + NITROGEN 3 T.	MY FARM
1. Yield, tons per acre (11% moisture)	2.5	2.5	
2. Price per ton	$ 60.00	$ 55.00	$
3. Gross income per acre	$150.00	$137.00	$
4. VARIABLE COSTS PER ACRE:[1]			
5. Establishment cost	$ 6.00	$ 3.00	$
6. Fertilizer and lime[2]	34.00	57.00	
7. Crop chemicals and supplies	$6 or $1	$6 or $1	
8. Custom machine hire	0 or $80	0 or $80	
9. Machinery: fuel, oil, and repairs	$30 or $3	$29 or $2	
10. Storage	--	--	
11. Miscellaneous	2.00	2.00	
12. Other:	--	--	
13. Interest[3]	$5 or $9	$7 or $10	
14. TOTAL VARIABLE COSTS	$83 or $135	$104 or $155	$
15. INCOME OVER VARIABLE COSTS	$67 or $15	$33 or (-$18)	$
16. Labor hours	6 or 1 hr.	6 or 1 hr.	hrs.

---

[1] Ranges are given in variable costs to approximate differences between harvest by owner with owned equipment (left side) and complete harvest by custom operator (right side of range). Fixed costs (not included above) are much higher with owner harvested hay.

[2] Fertilizer costs reflect average lime costs or $4 and $3 per year and 0-40-100 and 80-40-100, respectively, for grass-legume and grass-N budgets priced at 30¢, 30¢, and 18¢ for N, P_2O_2, and K_2O.

[3] Interest charge is computed at 14% per year on one-half of Items 5 through 12.

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TABLE C-9. PASTURE BUDGETS

Description of Production: Mow one time per year; custom application of fertilizer as needed; annual establishment cost includes reseeding legume.

	GRASS	GRASS-LEGUME	GRASS-NITROGEN	MY FARM
1. Yield, AUM per acre	3 AUM	5 AUM	6 AUM	____
2. Price per AUM[1]	$ 7.50	$ 7.50	$ 7.50	$____
3. Gross income per acre	$22.00	$37.00	$45.00	$____
4. VARIABLE COSTS PER ACRE:				
5. Establishment cost (annual share)	$ 3.00	$ 6.00	$ 4.00	$____
6. Fertilizer and lime[2]	9.00	20.00	50.00	____
7. Crop chemicals and supplies	1.00	2.00	2.00	____
8. Custom machine hire	--	--	--	____
9. Machinery: fuel, oil, repairs	2.00	2.00	3.00	____
10. Miscellaneous	---	---	---	____
11. Other: ____	--	--	--	____
12. Interest[3]	1.00	2.00	4.00	____
13. TOTAL VARIABLE COSTS	$16.00	$32.00	$63.00	$____
14. INCOME OVER VARIABLE COSTS	$ 6.00	$ 5.00	(-$18.00)	$____
15. Labor hours	1 hr.	1.5 hrs.	1.5 hrs.	____hrs.

[1] Price is the estimated 5-year market rental rate. The inherent value for producing livestock can be substantially higher or lower than this rental price whenever livestock prices change faster than grass rental rates.

[2] Fertilizer costs include average annual lime costs of $2 (3 AUM), $4 (grass-legume), and $4 (grass-N), along with average annual applications of 0-10-20, 0-25-50, and 100-25-50, respectively, for grass (3 AUM), grass-legume, and grass-N (6 AUM), along with application costs. Expected fertilizer prices: 30¢ N, 30¢ P_2O_5, and 18¢ K_2O.

[3] Interest charge is computed at 14% per year on one-half of Items 5 through 11.

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FORM 4
SUMMARY: CROPPING SYSTEM

Present Plan____
Alternative No.____

HO-29

FBMA III	Crop & land use	Total acres[1]	PER ACRE BUDGETS			BUDGET TOTALS			FARM FEED PRODUCTION			
			Avg. yield	Income over variable costs	Hours direct labor	Production	Income over variable costs	Hours direct labor	Corn equivalent[2]	Silage tons	Hay tons	Pasture AUM's[3]
	(1)	(2)	(3)	(4)	(5)	(6) 2x3	(7) 2x4	(8) 2x5	(9)	(10)	(11)	(12)
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17	TOTAL CROP ACRES											
18	Farmstead											
19	Idle land											
20	TOTALS											

[1] When land is double cropped, list first and second crops separately. Circle acreage of second crop and do not add circled figures in Col. 2.

[2] To calculate corn equivalent bushels, multiply feed grain yield in Column 6 by C.E. factor (corn = 1.0, grain sorghum = .95, barley = .77, and oats = .50).

[3] AUM = animal unit month.

DIRECTIONS: FORM 4, CROPPING SYSTEM

Use this form to calculate total income over variable costs, hours labor, and farm feed production for the cropping system of each plan considered.

Crops and land use are accounted for in Columns 1 and 2. Per acre crop budget information (Columns 3, 4, and 5) is used to calculate the totals (Columns 6, 7, and 8). Note: interest paid on crop operating capital is part of the variable costs per acre. Per acre budgets for rented crops should be adjusted for yields and income over variable costs as needed. Transfer farm feed totals in Column 6 to the appropriate Columns 9, 10, 11, or 12.

On Line 20, sum Columns 2, 7, 8, 9, 10, 11, and 12. Transfer totals of Columns 7 and 8 to Form 6, Line 6. Transfer totals of Columns 9, 10, 11, and 12 to Form 5, Line 8.

R factor:

Northern Missouri = 200
Central Missouri = 225
Southern Missouri = 250

K factor:

Erodiability (K) and Erosion Tolerance (T) Factors

	K	T
Marshall-Knox-Napier Deep loess soils adjacent to Missouri River bottom north and west of Glasgow	.32	5-4
Sharpsburg-Grundy-Ladogs-Pershing Moderately deep loess of west central Missouri	.37	3-2
Adair-Shelby-Armstrong-Gara Dark soil on slopes below loess deposits often used for forages and pasture	.28	3-2
Mexico-Putnam Claypen soils of northeast Missouri, level to moderately rolling	.40	3-2
Menfro-Winfield-Weldon River hills along Missouri River from central Missouri to St. Louis and Mississippi River hills north of St. Louis	.37	4-3
Lindley-Keswick-Hatton Sloping less fertile soils of north central and northeast Missouri, usually pasture or timber	.37	3-2

LS factor:

Slope Steepness and Length Factor (LS)

Length of Slope (L) (in feet)	Percent Slope (S) 2	3	4	5	6	7	8	9	10	12	14	16	18	20	22	24
20	.	2	2	2	2	4	4	6	6	8	1.0	1.2	1.6	1.8	2.2	2.6
30	2	2	2	2	4	4	6	6	8	1.0	1.2	1.6	2.0	2.2	2.6	3.0
40	2	2	2	4	4	6	6	8	8	1.2	1.4	1.8	2.2	2.6	3.0	3.5
50	2	2	2	4	4	6	6	8	1.0	1.2	1.6	2.0	2.4	3.0	3.5	4.0
60	2	2	4	4	6	6	8	1.0	1.0	1.4	1.8	2.2	2.8	3.0	4.0	4.5
70	2	2	4	4	6	6	8	1.0	1.2	1.6	2.0	2.4	3.0	3.5	4.0	5.0
80	2	2	4	4	6	8	8	1.0	1.2	1.6	2.0	2.6	3.0	3.5	4.5	5.0
90	2	2	4	6	5	8	1.0	1.2	1.2	1.8	2.2	2.8	3.5	4.0	4.5	5.5
100	2	4	4	6	6	8	1.0	1.2	1.4	1.8	2.4	2.8	3.5	4.0	5.0	5.5
110	2	4	4	6	8	8	1.0	1.2	1.4	1.8	2.4	3.0	3.5	4.5	5.0	6.0
120	2	4	4	6	8	8	1.0	1.2	1.4	2.0	2.6	3.0	4.0	4.5	5.5	6.0
130	2	4	4	6	8	1.0	1.2	1.4	1.6	2.0	2.6	3.5	4.0	5.0	5.5	7
140	2	4	4	6	8	1.0	1.2	1.4	1.6	2.2	2.8	3.5	4.0	5.0	6.0	7
150	2	4	6	6	8	1.0	1.2	1.4	1.6	2.2	2.8	3.5	4.5	5.0	6.0	7
160	2	4	6	6	8	1.0	1.2	1.4	1.8	2.2	3.0	3.5	4.5	5.5	6.0	7
180	2	4	6	8	8	1.0	1.4	1.6	1.8	2.4	3.0	4.0	4.5	5.5	7	8
200	4	4	6	8	1.0	1.2	1.4	1.6	2.0	2.6	3.5	4.0	5.0	6.0	7	8
250	4	4	6	8	1.0	1.2	1.6	1.8	2.2	2.8	3.5	4.5	5.5	7	8	9
300	4	6	8	1.0	1.2	1.4	1.8	2.0	2.4	3.0	4.0	5.0	6.0	7	9	10
350	4	6	8	1.0	1.2	1.6	1.8	2.2	2.6	3.5	4.5	5.5	7	8	9	11
400	4	6	8	1.0	1.4	1.6	2.0	2.4	2.8	3.5	4.5	5.5	7	8	10	11
500	4	6	1.0	1.2	1.4	1.8	2.2	2.6	3.0	4.0	5.0	6.0	8	9	11	13
600	6	8	1.0	1.4	1.6	2.0	2.4	2.8	3.5	4.5	5.5	7	9	10	12	14
700	6	8	1.0	1.4	1.8	2.2	2.6	3.0	3.5	5.0	6.0	8	9	11	13	15
800	6	8	1.2	1.6	1.8	2.4	2.8	3.5	4.0	5.0	7	8	10	12	14	16
900	6	1.0	1.2	1.6	2.0	2.4	3.0	3.5	4.0	5.5	7	9	10	13	15	17
1000	6	1.0	1.2	1.6	2.2	2.6	3.0	3.5	4.5	5.5	7	9	11	13	16	18
1200	8	1.0	1.4	1.8	2.4	2.8	3.5	4.0	4.5	6.0	8	10	12	14	17	20
1400	8	1.2	1.6	2.0	2.4	3.0	3.5	4.5	5.0	7	9	11	13	16	18	21
1600	8	1.2	1.6	2.2	2.6	3.5	4.0	4.5	5.5	7	9	11	14	17	20	23

Contour limits: 2 percent 400 feet, 8 percent 200 feet, 10 percent 100 feet, 14-24 percent 60 feet. The effectiveness of contouring beyond these limits is speculative.

C Factor:

Table A--Conventional Tillage-Cropland

Cropping System	Spring Plow, Residue Left	Fall Plow Residue Left	Spring Plow Residue Removed*	Fall Plow Residue Removed*
Cont. SB**	.42	.46	.54	.58
CSb**	.40	.44	.52	.56
CCSb**	.39	.43	.51	.55
Cont. C.	.38	.42	.50	.54
CCOx	.24	.27	.27	.30
CCWx	.22	.26	.24	.28
COx	.17	.19	.21	.23
CWx	.15	.17	.19	.21
CCCOM	.15	.17	.19	.21
CCCWM	.14	.16	.18	.20
CCOM	.12	.13	.18	.19
CCWM	.12	.13	.16	.17
CxCOM	.11	.12	.15	.16
CxCWM	.11	.12	.14	.15
CCOMM	.10	.11	.14	.15
CCWMM	.095	.11	.13	.14
CxCOMM	.090	.10	.10	.11
CxCWMM	.089	.10	.11	.12
CCOMMM	.082	.09	.12	.13
CCWMMM	.079	.09	.11	.12
CxCOMMM	.076	.085	.10	.11
CxCWMMM	.075	.085	.093	.103
COWMM	.067	.075	.091	.101
COM	.060	.070	.097	.107
CWM	.052	.060	.088	.096
COMM	.046	.050	.074	.078
CWMM	.040	.050	.067	.077
CWMMM	.033	.037	.054	.058
CWMMMM	.028	.032	.046	.050

C = Corn - Sb = Soybeans W = Winter grain M = Meadow
O = Spring grain X = Cover or green manure crop

*Residue removed includes corn stover and grain stover.

**Rotations with soybeans are calculated with 1500 pounds residue for each year of soybeans.

A factor for plow planting may be calculated by multiplying the factor for conventional tillage by 0.6.

Table B--Conservation Tillage-Cropland

"C" Factors for Cropland--Conservation Tillage

	33% Soil Surface Tilled							10% Soil Surface Tilled						
	Row Crop Residue*					Sod Residue**		Row Crop Residue*					Sod Residue**	
Cropping System	1500 lb	2000-3000 lb	3000-4000 lb	4000-6000 lb	6000 + lb	2000-3000 lb	3000+ lb	1500 lb	2000-3000 lb	3000-4000 lb	4000-6000 lb	6000+ lb	2000-3000 lb	3000+ lb
Cont. R***	.311	.243	.188	.131	.080	.034	.027	.249	.192	.130	.070	.030	.016	.008
RRROx	.287	.245	.194	.173	.131	.037	.032	.251	.198	.155	.135	.102	.024	.018
RROx	.253	.223	.200	.177	.161	.038	.033	.229	.205	.181	.165	.123	.028	.021
RRROM	.197	.156	.123	.089	.058	.031	.027	.160	.125	.088	.052	.028	.020	.015
RROM	.168	.134	.107	.078	.053	.030	.026	.138	.109	.078	.048	.028	.021	.017
RROMM	.136	.109	.087	.064	.043	.025	.022	.111	.088	.063	.039	.023	.018	.015
RROMMM	.114	.091	.073	.054	.037	.022	.019	.093	.074	.054	.034	.020	.016	.013
ROM						.028	.026						.022	.020
ROMM						.023	.021						.018	.016
ROMMM						.019	.018						.015	.014
ROMMMM						.017	.015						.014	.013

The quantities of crop residue listed above refer to the amounts of cover in pounds per acre still remaining on the soil surface after planting.

*When meadows or green manure crops are included in the rotation, the calculations are based on plowing in the conventional manner for the first year corn and the balance of the years of corn are mulch tilled.

**When planted in sod residue, calculations are based on planting in sod without plowing for first year. All succeeding corn is planted with 6000 + lbs of residue cover.

***R = Corn or Soybeans. The amount of residue produced by the crop determines the erosion potential. 100 bu corn has 5600 pounds residue (1# residue/lb grain); 30 bu wheat has 3000 lbs; soybeans has 3000 lbs.

Unfortunately, for C values have not been evaluated for many other reduced tillage systems such as chisel plow and till-plant systems. An estimate can be made by estimating the surface residue and using the following chart. A chisel plow will reduce surface residue from 20 to 50 percent each time it is used. "C" factors for double cropping should be comparable to conservation tillage.

Table C--Other Reduced Tillage Systems

Cover or Mulch	"C" Factor
bare areas	1.0
1/4 ton straw mulch	.52
1/2 ton straw mulch	.35
3/4 ton straw mulch	.24
1 ton straw mulch	.18
1 1/2 ton straw mulch	.10
2 ton straw mulch	.06
3 ton straw mulch	.03
4 ton straw mulch	.02
annual cover	.15

Table D--Permanent Pasture, Rangeland, and Idleland

Vegetal Canopy			Cover That Contacts the Surface					
			Percent Ground Cover					
Type and Height of Raised Canopy[2]	Canopy Cover[3]	Type[4]	0	20	40	60	80	95-100
Column No.:	2	3	4	5	6	7	8	9
No appreciable canopy		G	.45	.20	.10	.042	.013	.003
		W	.45	.24	.15	.090	.043	.011
Canopy of tall weeds or short brush (0.5 m fall ht.)	25	G	.36	.17	.09	.038	.012	.003
		W	.36	.20	.13	.082	.041	.011
	50	G	.26	.13	.07	.035	.012	.003
		W	.26	.16	.11	.075	.039	.011
	75	G	.17	.10	.06	.031	.011	.003
		W	.17	.12	.09	.067	.038	.011
Appreciable brush or bushes (2 m fall ht.)	25	G	.40	.18	.09	.040	.013	.003
		W	.40	.22	.14	.085	.042	.011
	50	G	.34	.16	.085	.038	.012	.003
		W	.34	.19	.13	.081	.041	.011
	75	G	.28	.14	.08	.036	.012	.003
		W	.28	.17	.12	.077	.041	.011
Trees but no appreciable low brush (4 m fall ht.)	25	G	.42	.19	.10	.041	.013	.003
		W	.42	.23	.14	.087	.042	.011
	50	G	.39	.18	.09	.040	.013	.003
		W	.39	.21	.14	.085	.042	.011
	75	G	.36	.17	.09	.039	.012	.003
		W	.36	.20	.13	.083	.041	.011

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[1] All values shown assume: (1) random distribution of mulch or vegetables, and (2) mulch of appreciable depth where it exists.

[2] Average fall height of waterdrops from canopy to soil surface: m = meters.

[3] Portion of total-area surface that would be hidden from view by canopy in a vertical projection, (a bird's-eye view).

[4] G: Cover at surface is grass, grasslike plants, decaying compacted duff, or litter at least 2 inches deep.

W: Cover at surface is mostly broadleaf herbaceous plants (as weeds) with little lateral-root network near the surface, and/or undecayed residue.

P Value

Land slope %	Contouring	Strip cropping	Terrace w/ normal main.	Upslope terr. w/plow
1 - 2	0.60	0.30	0.30	0.12
2 - 7	0.50	0.25	0.25	0.10
7 - 12	0.60	0.30	0.30	0.12
12 - 18	0.80	0.40	0.40	0.16
18 - 24	0.90	0.45	0.45	0.18

The above listed "[illegible]lues for contouring are subject to the restrictions of slope length listed below. If the slope length exceeds that listed in the following chart, an approximation of the "P" value must be made by use of the formula following the chart. If terraces are employed, slope length is equal to terrace interval.

Land Slope %	Maximum Slope Length (ft)
2	400
4 - 6	300
8	200
10	100
12	80
14 - 24	60

$$P = \frac{\text{Max. Slope Length}}{\text{Actual Slope Length}} \text{ (P value for slope (from table above)) } + \frac{\text{(Actual Slope Length - Max. Slope Length)}}{\text{actual slope length}}$$

FARM BUSINESS MANAGEMENT ANALYSIS

UNIT III: Adjusting the Farm Business to Increase Profit

Lesson 6: Determining the Most Profitable Livestock Enterprises for My Farm

A. Review

The previous lesson, Determining the Most Profitable Cropping System, should be reviewed. Possible conclusion may have included:

1. Budgets for crops should be developed using data from each individual's analysis.
2. A profitable cropping system should be developed prior to planning the livestock system.
3. Cropping systems must have "tolerable" soil losses.
4. Combining profitability and soil losses is the key to a good cropping program
5.
6.

B. Objective

To be able to determine which livestock enterprises would be most profitable on my farm and estimate the effect of enterprise changes.

C. Motivation

Ask the group which livestock enterprises make the most income over variable costs on farms in the area. List these on the board. Prior to the class determine the "Returns Per $100 Feed Fed" for enterprises of enrollees in your group. Appropriate sources for this information for your area would include the most recent FBMA summary, Mail-In Record Summaries, etc.

Ask if some enterprises subsidize others on some farms. In other words: Can we be losing money on some enterprises but not realize it because we have total farm net profit.

There is a need to be able to evaluate which enterprises are the most profitable so that we can plan changes in an operation to increase net profit.

While showing TM-39, "How Livestock Can Increase Income", discuss the ways livestock can help increase income. Use the following guidelines in your discussion.

1. Market Pasture and Crop By-Products

   These products such as grass and crop residue may not be marketable except through livestock. Most farms have non-tillable areas that could be used for grazing. Use of crop residues and wheat pasture for winter grazing could increase the carrying capacity for livestock on a farm.

2. Market Crops as Grain at Higher Returns

   The crop farmer may be able to get a better price for crops by feeding it and selling livestock particularly when livestock prices are favorable compared to grain prices or where basis on grain is high due to transportation costs.

3. Keep Labor Fully and Profitably Employed

   Crop farmers usually have periods or seasons where labor requirements are much lower than during planting, harvesting; etc. Family labor could be utilized during these slack periods if a livestock system was chosen that required most of its labor during off-seasons. In addition, hired labor might be more reliable if it could be utilized year round for full time employment.

   Point out that the goal of a livestock system is to maximize income over costs. The producer should analyze income over costs. The producer should look at income over variable costs per unit before deciding what facilities and equipment (fixed costs) will be needed for the enterprise.

D. **Key Points**

1. **What is the income over variable costs and labor requirements for different livestock enterprises on my farm?**

2. **What investment is needed to add or enlarge a livestock enterprise on my farm?**

3. **How can I determine the most profitable livestock enterprise(s) for my farm?**

E. Introduction of Information

Start the introducation of information by telling the enrollees that we will first look at present livestock enterprises and then determine if alternative enterprises might be feasible.

1. **What is the income over variable costs and labor requirements for different livestock enterprises on my farm?**

   a. Distribute from HO-34 through HO-62 from manual 75, the budgets needed by your enrollees. Go through a few of these, showing how income over variable costs was figured. Point out that long range projections were used for these. Point out also the various management systems used for budgets. At this point it would be best to discuss how enrollees feel about the price projections and distribute copies of UMC Agriculture Economics Department "Outlook" sheets to get some short term price projection information to work with.

Choose a budget for a particular enterprise and management system and work a budget for "our area" (my farm) with input from the class. Use data from a farm analysis of last year or of an average of several farm analyses. As an example, in 1981, the average Missouri FBMA enrollee with farrow to finish hogs had 1.76 litters per sow per year, weaned 6.67 pigs per litter, and had 1.6% death loss following weaning. Feed requirements were 427 pounds per 100 pounds grain. This data should be used for planning unless the individual can demonstrate a higher level of efficiency.

b. Then have the class choose some budgets that they would be interested in working and divide into groups of 2 or 3 couples each for figuring budgets they are interested in. Give each group data from recent FBMA Summaries to use in their work. Discuss the results, pointing out that in addition to income over variable costs, there are also labor, capital, and facility requirements which may limit or determine the number of units possible for each enterprise.

c. Show TM-40, "Labor Available and Labor Requirements," to use as a guide in discussing labor requirements and available labor for use in the livestock enterprises.

2. **What investment is needed to add or enlarge a livestock enterprise on my farm?**

Point out that once you have determined the income over variable costs for an enterprise, the investment required for the change needs to be considered.

a. Show transparency TM-41, "What Investments Will Be Needed," and discuss the main points which are listed below.

(1) Breeding herd investment. What will it cost to buy the sows, cows, bull, etc. to add an enterprise?

(a) If changing enterprises, will sale of present livestock meet breeding herd investment costs? - if selling cows, will this provide money to buy sows, etc.?

(b) How much extra capital will be needed? Will this capital be available in addition to facility costs. Discuss breeding herd investments shown in handout budgets.

(c) How fast can capital be recovered? - Hogs, for example, turn capital over very fast while it might take several years to recover the breeding herd investment with beef cows.

(2) Facilities Investment

(a) What facilities will be needed for adding or changing enterprises. - Once you decide how many animals for which you have the capital, labor, feed, etc. to handle, facility costs for these can be estimated.

(1) Distribute HO-63 through HO-67, "Facilities Cost," and discuss how facilities costs could be estimated, using examples. Look at several examples.

(b) Can existing facilities be used? There are a number of alternatives for housing and feeding livestock. An old chicken house could be adapted to feed hogs, for example.

(c) Is adequate capital available for new facilities? - Is money or finanacing available? - Can it be financed so that the income from the enterprise can keep pace with payments? (feasibility)

b. Point out that although income over variable costs may look good, profit cannot be estimated until facility costs are considered. Facilities are often a trade-off for labor, but fixed costs need to be kept as low per unit as possible. High fixed costs may keep a farmer "locked in" to an enterprise and limit flexibility.

3. **How can I determine the most profitable livestock enterprise(s) for my farm?**

Enrollees should have completed a cropping plan in the previous lesson "Determining the most Profitable Cropping System for My Farm." Using these, have enrollees complete HO-68, HO-69, and HO-70 for the present situation. You might want to use a volunteer's present situation as an example.

Point out that enrollees should probably use the present situation first and then look at several alternative plans. Have enrollees complete an alternative plans based on new enterprises they are considering. Point out that in choosing the number of units (sows, cows, etc.) they should not exceed the amount of labor and capital that is available to them for the new enterprises.

Again, you might want to first go through a volunteer's alternative plan as an example.

Remind the enrollees that the object here is to increase total farm net profit while remaining realistic in terms of labor and capital required.

F. Group Discussion

Compare and evaluate the results of the alternative enterprise plans relative to the present situation. Remind the enrollees that major changes in enterprises should be approached slowly and deliberately. Have the enrollees share ideas of how they think they might be able to increase net profit through the livestock enterprises.

G. Conclusions

1. Each enterprise should be separately evaluated on its own merits. Each must provide net income.
2. Weak enterprises may need to be re-considered.
3. Each resource available - land, labor, capital, and management - should be utilized as fully as possible. Farm enterprises must fit together to bring this about for maximum profit.
4.
5.
6.

Announcements

Ask each enrollee to complete the appropriate "My Farm" column of HO-34 through HO-62 for the enterprises they want to consider prior to your visit this month. Then during your farm visit you can work on the entire livestock plan for the farm.

Social

On-the-Farm Instruction

Review the livestock budgets and assist in getting the data accurate for the individual situation. Some alternatives in selection of livestock enterprises should be reviewed. Also, an enrollee that wants to take a look at major changes in enterprises could run the Remote Computer Planning (RCP) Program LRPLAN (Long Run Planning). A sample program and input forms is included as HO-71. (If a terminal is not available the input form can be mailed to the Agricultural Education Office.)

Materials Needed

Instructor

TM-39: How Livestock Can Increase Income
TM-40: Labor Available and Labor Requirements
TM-41: What Investments Will Be Needed
Outlook materials for livestock

Student

HO-34: Sow and Market Hog Budgets
HO-35: Sow and Feeder Pigs Budgets (40 lb. pigs)
HO-36: Sow and Feeder Pigs Budgest (60 lb. pigs)
HO-37: Purchased Feeder Pigs Budgets
HO-38: Beef Cow Budget, Fall Calving
HO-39: Beef Cow Budget, Winter Calving
HO-40: Beef Cow Budget, Spring Calving
HO-41: Beef Steer Budget, Wintered Only
HO-42: Steer Calf Budgets, Wintered and Grazed and Summer Grazed Only
HO-43: Beef Steer Calf Feeding Budgets
HO-44: Beef Steer Calf Feeding Budget (Deferred System)
HO-45: Beef Heifer Feeding Budgets
HO-46: Choice Yearling Steer Feeding Budgets
HO-47: Plain Yearling Steer Feeding Budgets
HO-48: Dairy Cow Budget, 10,000 lbs. Milk, Fluid Market
HO-49: Dairy Cow Budget, 12,500 lbs. Milk, Fluid Market
HO-50: Dairy Cow Budget, 15,000 lbs. Milk, Fluid Market
HO-51: Dairy Cow Budget, 15,000 lbs. Milk, Fluid Market
HO-52: Dairy Cow Budget, 10,000 lbs. Milk, Manufactured Market
HO-53: Dairy Cow Budget, 12,500 lbs. Milk, Manufactured Market
HO-54: Replacement Dairy Heifer Budget
HO-55: Growing Dairy Feeder Steer Budget
HO-56: Footnotes for Dairy Budgets
HO-57: Sheep Budget - One Ram Flocks
HO-58: Feeder Lamb Budget for 100 Head
HO-59: Laying Hen Budget, Commercial Flock
HO-60: Broiler Budget
HO-61: Broiler and Turkey Budgets
HO-62: Animal Space Requirements for Farmstead Planning
HO-63: Facilities Cost, Beef
HO-64: Facilities Cost, Beef
HO-65: Facilities Cost, Beef
HO-66: Facilities Cost, Dairy
HO-67: Facilities Cost, Poultry
HO-68: Summary: Farm Investment Capital
HO-69: Summary: Livestock System
HO-70: Summary: Capital, Labor, Income, and Returns
HO-71: LRPLAN (Long Run Planning) Input Form
Missouri Farm Business Analysis Record Book
Prior year's Farm Record Analysis

HOW LIVESTOCK CAN INCREASE INCOME

1. MARKET PASTURE AND CROP BY-PRODUCTS
2. MARKET CROPS AS GRAIN AT HIGHER RETURNS
3. KEEP LABOR FULLY AND PROFITABLY EMPLOYED

LABOR AVAILABLE AND LABOR REQUIREMENTS

1. A FULL-TIME FARMER USUALLY HAS 2,000-2,500 HOURS AVAILABLE FOR THE ENTIRE OPERATION. ADDITIONAL LABOR MAY BE AVAILABLE FROM FAMILY MEMBERS OR HIRED MEN.
2. HOW MUCH EXTRA NON-HIRED LABOR IS AVAILABLE NOW?
3. HOW MUCH LABOR WILL BE SAVED BY CHANGING ENTERPRISES?
4. HOW MUCH ADDITIONAL LABOR WILL BE NEEDED TO CHANGE ENTERPRISES?
5. IS HIRED LABOR AVAILABLE AND CAN IT BE USED PROFITABLY?

WHAT INVESTMENTS WILL BE NEEDED

1. BREEDING HERD INVESTMENT
   - A. IF CHANGING ENTERPRISES, WILL SALE OF PRESENT LIVESTOCK MEET BREEDING HERD INVESTMENT COSTS?
   - B. HOW MUCH EXTRA CAPITAL WILL BE NEEDED AND WILL IT BE AVAILABLE?
   - C. HOW FAST CAN BREEDING HERD CAPITAL BE RECOVERED?
2. FACILITIES INVESTMENT
   - A. WHAT FACILITIES WILL BE NEEDED FOR ADDING OR CHANGING ENTERPRISES AND WHAT WILL THE COSTS BE?
   - B. CAN EXISTING FACILITIES BE UTILIZED?
   - C. IS ADEQUATE CAPITAL AVAILABLE FOR NEW FACILITIES?

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TABLE L-2. SOW AND MARKET HOGS BUDGETS (PER SOW UNIT PER YEAR)

Level of production ▷	12 PIGS RAISED		14 PIGS RAISED		16 PIGS RAISED		MY FARM
	11.5 pigs sold		13.5 pigs sold		15.5 pigs sold		
1. Detail of gross receipts: (per sow unit per year)							
230 lb. market hogs	26.45 cwt. @ $56	$1481	31.05 cwt. @ $56	$1739	35.65 cwt. @ $56	$1996	
400 lb. cull sow	2 cwt. @ $48	96	2 cwt. @ $48	96	2 cwt. @ $48	96	
2. GROSS RECEIPTS PER SOW UNIT PER YEAR		$1577		$1835		$2092	
3. Feed:							
Grain (corn equivalent) @ $3.40/bu.	180 bu.	$ 612	200 bu.	$ 680	220 bu.	$ 748	
Protein, salt, minerals @ 13¢/lb.	2200 lbs.	286	2460 lbs.	320	2720 lbs.	354	
Creep feed @ 18¢/lb.	350 lbs.	63	400 lbs.	72	450 lbs.	81	
4. TOTAL FEED COSTS		$ 961		$1072		$1183	
5. Machinery costs, feed preparation, etc.		$ 50		$ 58		$ 66	
6. Veterinary & medicine		26		31		36	
7. Other livestock materials & services[1]		50		57		64	
8. Utilities		26		32		38	
9. Breeding charge[2]		20		22		24	
10. Operating interest[3]		40		44		49	
11. TOTAL OTHER VARIABLE COSTS (add Lines 5 through 10)		$ 212		$ 244		$ 277	
12. TOTAL ALL VARIABLE COSTS (Line 4 + Line 11)		$1173		$1316		$1460	
13. INCOME OVER VARIABLE COSTS[4] (Line 2 minus Line 12)		$ 404		$ 519		$ 632	
14. Labor hours		28 hrs.		28 hrs.		28 hrs.	
15. Breeding herd investment		$ 175		$ 175		$ 175	

[1] Includes marketing costs, advertising, bedding, etc.

[2] One-half of sum of Lines 4 through 9 times percent of year owned (50%) times 14% interest.

[3] Breeding costs include boar depreciation, death loss, infertility, etc. Feed is included in Line 3.

[4] Real estate and property taxes, building insurance and repairs, hired labor, and miscellaneous expense are to be accounted for on Form 6, FM 7536.

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TABLE L-3. SOW AND FEEDER PIGS BUDGETS, 40 LB. PIGS SOLD (PER SOW UNIT PER YEAR)

Level of production ⇨	12 PIGS RAISED		14 PIGS RAISED		16 PIGS RAISED		MY FARM
	11.5 pigs sold		13.5 pigs sold		15.5 pigs sold		224 HO-35 FBMA-III
1. Detail of gross receipts: (per sow unit per year)							
40 lb. pigs	4.6 cwt. @ $110	$506.00	5.4 cwt. @ $110	$594.00	6.2 cwt. @ $110	$682.00	
400 lb. cull sow	2 cwt. @ $48	96.00	2 cwt. @ $48	96.00	2 cwt. @ $48	96.00	
2. GROSS RECEIPTS PER SOW UNIT PER YEAR		$602.00		$690.00		$778.00	
3. Feed:							
Grain (corn equivalent) @ $3.40/bu.	40 bu.	$136.00	44 bu.	$149.50	48 bu.	$163.00	
Protein, salt, minerals @ 13¢/lb.	650 lbs.	84.50	700 lbs.	91.00	775 lbs.	101.00	
Creep feed @ 18¢/lb.	300 lbs.	54.00	350 lbs.	63.00	375 lbs.	67.50	
4. TOTAL FEED COSTS		$274.50		$303.50		$331.50	
5. Machinery costs, feed preparation, etc.		$ 28.00		$ 31.00		$ 34.00	
6. Veterinary & medicine		26.00		31.00		36.00	
7. Other livestock materials & services[1]		26.00		29.00		32.00	
8. Utilities		25.00		28.00		31.00	
9. Breeding charge[2]		20.00		22.00		24.00	
10. Operating interest[3]		14.00		15.50		17.00	
11. TOTAL OTHER VARIABLE COSTS (add Lines 5 through 10)		$139.00		$156.50		$174.00	
12. TOTAL ALL VARIABLE COSTS (Line 4 + Line 11)		$413.50		$460.00		$505.50	
13. INCOME OVER VARIABLE COSTS[4] (Line 2 minus Line 12)		$188.50		$230.00		$272.50	
14. Labor hours		18 hrs.		18 hrs.		18 hrs.	
15. Breeding investment		$175.00		$175.00		$175.00	

[1] Includes marketing costs, advertising, bedding, etc.

[2] One-half of sum of Lines 4 through 9 times percent of year (50%) owned times 14% interest.

[3] Breeding costs include boar depreciation, death loss, infertility, etc. Feed is included in Line 3.

[4] Real estate and property taxes, building insurance and repairs, hired labor, and miscellaneous expense are to be accounted for on Form 6, FM 7536.

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TABLE L-4. SOW AND FEEDER PIGS BUDGETS, 60 LB. PIGS SOLD (PER SOW UNIT PER YEAR)

Level of production ◊	12 PIGS RAISED		14 PIGS RAISED		16 PIGS RAISED		MY FARM
	11.5 pigs sold		13.5 pigs sold		15.5 pigs sold		
1. Detail of gross receipts: (per sow unit per year)							
60 lb. pigs	6.9 cwt. @ $94	$648.50	8.1 cwt. @ $94	$761.00	9.3 cwt. @ $94	$874.00	
400 lb. sow	2 cwt. @ $48	96.00	2 cwt. @ $48	96.00	2 cwt. @ $48	96.00	
2. GROSS RECEIPTS PER SOW UNIT PER YEAR		$744.50		$857.00		$970.00	
3. Feed:							
Grain (corn equivalent) @ $3.40/bu.	50 bu.	$170.00	54 bu.	$183.50	58 bu.	$197.00	
Protein, salt, minerals @ 13¢/lb.	800 lbs.	104.00	875 lbs.	114.00	950 lbs.	123.50	
Creep feed @ 18¢/lb.	325 lbs.	58.50	375 lbs.	67.50	400 lbs.	72.00	
4. TOTAL FEED COSTS		$332.50		$365.00		$392.50	
5. Machinery costs, feed preparation, etc.		$ 35.00		$ 40.00		$ 45.00	
6. Veterinary & medicine		26.00		31.00		36.00	
7. Other livestock materials & services[1]		28.00		31.00		34.00	
8. Utilities		25.00		28.00		31.00	
9. Breeding charge[2]		20.00		20.00		24.00	
10. Operating interest[3]		16.50		18.00		19.50	
11. TOTAL OTHER VARIABLE COSTS (add Lines 5 through 10)		$150.50		$168.00		$189.50	
12. TOTAL ALL VARIABLE COSTS (Line 4 + Line 11)		$483.00		$533.00		$582.00	
13. INCOME OVER VARIABLE COSTS[4] (Line 2 minus Line 12)		$261.50		$324.00		$388.00	
14. Labor hours		22 hrs.		22 hrs.		22 hrs.	
15. Breeding herd investment		$175.00		$175.00		$175.00	

[1] Includes marketing costs, advertising, bedding, etc.

[2] One-half of sum of Lines 4 through 9 times percent of year owned (50%) times 14% interest.

[3] Breeding costs include boar depreciation, death loss, infertility, etc. Feed is included in Line 3.

[4] Real estate and property taxes, building insurance and repairs, hired labor, and miscellaneous expense are to be accounted for on Form 6, FM 7536.

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TABLE L-5. PURCHASED FEEDER PIGS BUDGETS

Level of production ⇨	Bought at 40 lbs. Sold at 230 lbs.		Bought at 50 lbs. Sold at 230 lbs.		Bought at 60 lbs. Sold at 230 lbs.		MY FARM
1. GROSS RECEIPTS PER HOG	2.3 cwt. @ $56	$129.00	2.3 cwt. @ $56	$129.00	2.3 cwt. @ $56	$129.00	
2. PURCHASE COST	.4 cwt. @ $110	$ 44.00	.5 cwt. @ $102	$ 51.00	.6 cwt. @ $94	$ 56.50	
3. Feed:							
Grain (corn equivalent) @ $3.40/bu.	12 bu.	$ 41.00	11.5 bu.	$ 39.00	11 bu.	$ 37.50	
Protein, salt, minerals @ 13¢/lb.	120 lbs.	15.50	110 lbs.	14.50	100 lbs.	13.00	
4. TOTAL FEED COSTS		$ 56.50		$ 53.50		$ 50.50	
5. Machinery costs, feed preparation, etc.		$ 3.00		$ 3.00		$ 3.00	
6. Veterinary & medicine		1.50		1.50		1.50	
7. Other livestock materials and services[1]		4.00		4.00		4.00	
8. Utilities		1.00		1.00		1.00	
9. Death loss[2]		2.50		2.50		3.00	
10. Operating interest[3]		3.50		4.00		4.00	
11. TOTAL OTHER VARIABLE COSTS (add Lines 5 through 10)		$ 15.50		$ 16.00		$ 16.50	
12. TOTAL ALL VARIABLE COSTS (Lines 2 + 4 + 11)		$116.00		$120.50		$123.50	
13. INCOME OVER VARIABLE COSTS[4] (Line 1 minus Line 12)		$ 13.00		$ 8.50		$ 5.50	
14. Labor hours		.4 hr.		.3 hr.		.3 hr.	

[1] Includes marketing costs, advertising, bedding, etc.

[2] 4% of purchase cost (Line 2) plus 1% of total feed cost (Line 4).

[3] Purchase cost plus 50% of Lines 4 through 9 times percent of year owned (33%) times 14% interest.

[4] Real estate and property taxes, building insurance and repairs, hired labor, and miscellaneous expense are to be accounted for on Form 6, FM 7536.

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TABLE L-6. BEEF COW BUDGET, FALL CALVING

Description of Production: September-October calves, 87% calf crop, 575 lb. calf sold in August, 15% replacement rate, 1% cow loss, and calf creep fed only from early winter to spring grass.

			MY FARM
1. Details of gross receipts:			
Calves sold: .87 calf minus .15 repl. hfr. = .72 calf	.72 x 575 lbs. @$72.50	$300.00	
Cows sold: 14% culled	.14 x 925 lbs. @$45.00	58.00	
2. GROSS RECEIPTS PER COW		$358.00	
3. Feed:			
Corn equivalent, $3.40/bu.	8.0 bu.	$ 27.00	
Protein, salt, minerals, & additives, $13/cwt.	2.0 cwt.	26.00	
Corn silage, $25/T.		--	
Mixed hay, $60/T.	.4 T	24.00	
Grass hay, $55/T.	1.0 T.	55.00	
Pasture, $7.50/AUM	11.8 AUM	89.00	
4. TOTAL FEED COSTS		$221.00	
5. Machinery costs, feed preparation, etc.		$ 12.00	
6. Veterinary & medicine		5.00	
7. Other livestock materials & services[1]		10.00	
8. Util., ins., repair, misc.		7.00	
9. Operating interest[2]		18.00	
10. TOTAL OTHER VARIABLE COSTS (add Lines 5 through 9)		$ 52.00	
11. TOTAL ALL VARIABLE COSTS (Line 4 + Line 10)		$273.00	
12. INCOME OVER VARIABLE COSTS[3] (Line 2 minus Line 11)		$ 85.00	
13. Labor hours		7.5 hrs.	
14. Breeding herd investment		$575	

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[1] Includes commission, yardage, and hauling costs as well as bull depreciation.

[2] Half of sum of Lines 4 through 8 times 14% interest. Does not include interest for breeding herd investment.

[3] Other cash costs such as real estate and property taxes, building insurance and repairs, hired labor, and other overhead expenses are to be accounted for on Form 6, FM 7536.

TABLE L-7. BEEF COW BUDGET, WINTER CALVING

Description of Production: January-February calves, 85% calf crop, 500 lb. calves sold in October, 15% replacement with 1% cow loss.

			MY FARM
1. Details of gross receipts: Calves sold: .85 calf minus .15 repl. hfr. = .70	.70 x 500 lbs. @ $74.50	$261.00	
Cows sold: 14% culled	.14 x 975 lbs. @ $45	61.00	
2. GROSS RECEIPTS PER COW		$322.00	
3. Feed:			
Corn equivalent, $3.40/bu.	3 bu.	$ 10.00	
Protein, salt, minerals, & additives, $13/cwt.	1.5 cwt.	20.00	
Corn silage, $25/T.		--	
Mixed hay, $60/T.	.3 T.	18.00	
Grass hay, $55/T.	1 T.	55.00	
Pasture, $7.50/AUM	11.8 AUM	89.00	
4. TOTAL FEED COSTS		$192.00	
5. Machinery costs, feed preparation, etc.		$ 10.00	
6. Veterinary & medicine		5.00	
7. Other livestock materials & services[1]		13.00	
8. Util., ins., repair, misc.		5.00	
9. Operating interest[2]		15.00	
10. TOTAL OTHER VARIABLE COSTS (add Lines 5 through 9)		$ 48.00	
11. TOTAL ALL VARIABLE COSTS (Line 4 + Line 10)		$240.00	
12. INCOME OVER VARIABLE COSTS[3] (Line 2 minus Line 11)		$ 82.00	
13. Labor hours		7.0 hrs.	
14. Breeding herd investment		$550	

[1] Includes commission, yardage, and hauling costs as well as bull depreciation.

[2] Half of sum of Lines 4 through 8 times 14% interest. Does not include interest on breeding herd investment.

[3] Other cash costs such as real estate and property taxes, building insurance and repairs, hired labor, and other overhead expenses are to be accounted for on Form 6, FM 7536.

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TABLE L-8. BEEF COW BUDGET, SPRING CALVING

Description of Production: March-April calves, 87% calf crop, 400 lb. calves sold in October, 15% replacement rate and 1% cow loss.

			MY FARM
1. Details of gross receipts: Calves sold: .87 calf minus .15 repl. hfr. = .72 calf Cows sold: 14% culled	.72 x 400 lbs. @ $77 .14 x 975 lbs. @ $45	$222.00 61.00	
2. GROSS RECEIPTS PER COW		$283.00	
3. Feed:			
Corn equivalent, $3.40/bu.		--	
Protein, salt, minerals, & additives, $13/cwt.	1.2 cwt.	$ 16.00	
Corn silage, $25/T.		--	
Mixed hay, $60/T.		--	
Grass hay, $55/T.	1.1 T.	60.00	
Pasture, $7.50/AUM	11.4 AUM	86.00	
4. TOTAL FEED COSTS		$162.00	
5. Machinery costs, feed preparation, etc.		$ 8.00	
6. Veterinary & medicine		5.00	
7. Other livestock materials & services[1]		12.00	
8. Util., ins., repair, misc.		4.00	
9. Operating interest[2]		14.00	
10. TOTAL OTHER VARIABLE COSTS (add Lines 5 through 9)		$ 43.00	
11. TOTAL ALL VARIABLE COSTS (Line 4 + Line 10)		$205.00	
12. INCOME OVER VARIABLE COSTS[3] (Line 2 minus Line 11)		$ 78.00	
13. Labor hours		5.5 hrs.	
14. Breeding herd investment		$525	

[1] Includes commission, yardage, and hauling costs as well as bull depreciation.

[2] Half of sum of Lines 4 through 8 times 14% interest. Does not include interest on breeding herd investment.

[3] Other cash costs such as real estate and property taxes, building insurance and repairs, hired labor, and other overhead expenses are to be accounted for on Form 6, FM 7536.

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TABLE L-9. STEER CALF BUDGETS, WINTERED ONLY

Description of Production: Steer calf purchased in fall and sold in spring.

	WINTERED FOR FEEDLOT		WINTERED FOR SUMMER GRAZING		MY FARM
Production:					
Days owned	150		150		
Gain per head	250 lbs.		125 lbs.		
Average daily gain	1.6 lbs.		.83 lbs.		
1. GROSS RECEIPTS PER HEAD	650# @ $76/cwt.	$494	525# @ $82/cwt.	$430	
2. PURCHASE COST PER HEAD	400# @ $81/cwt.	$324	400# @ $81/cwt.	$324	
3. Feed:					
Corn equivalent, $3.40/bu.		--		--	
Protein, salt, minerals, & additives, $13/cwt.	175#	$ 23	20#	$ 10	
Corn silage, $25/T.	3.3 T.	82		--	
Mixed hay, $60/T.		--	.8 T.	48	
Grass hay, $55/T.		--		--	
Pasture, $7.50/AUM		--	.5 AUM	4	
4. TOTAL FEED COSTS		$108		$ 62	
5. Machinery costs, feed preparation, etc.		$ 7		$ 4	
6. Veterinary & medicine		4		4	
7. Other livestock materials & services[1]		10		8	
8. Util., ins., repair, misc.		3		2	
9. Death loss[2]		7		7	
10. Operating interest[3]		23		21	
11. TOTAL OTHER VARIABLE COSTS (add Lines 5 through 10)		$ 54		$ 46	
12. TOTAL ALL VARIABLE COSTS (Lines 2 + 4 + 11)		$486		$432	
13. INCOME OVER VARIABLE COSTS[4] (Line 1 minus Line 12)		$ 8		(-$ 2)	
14. Labor hours		3 hrs.		3 hrs.	

[1] Includes hauling, yardage, commission, etc.

[2] 2% of purchase cost (Line 2).

[3] Purchase cost (Line 2) + 50% of sum of Lines 4 through 9 times percent of year owned times 14% interest.

[4] Other cash costs such as real estate and property taxes, building insurance and repairs, hired labor, and other overhead expenses are to be accounted for on Form 6, FM 7536.

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TABLE L-10. STEER CALF BUDGETS, WINTERED AND GRAZED AND SUMMER GRAZED ONLY

Description of Production: A. Winter and graze full year.
B. Summer graze only.

	A. BUY FALL, SELL YEAR LATER		B. BUY SPRING, SELL FALL		MY FARM
Production:					
Days owned	360		210		
Gain per head	350 lbs.		225 lbs.		
Average daily gain	.97 lbs.		1.1 lbs.		
1. GROSS RECEIPTS PER HEAD	750# @ $71/cwt.	$532	750# @ $71/cwt.	$532	
2. PURCHASE COST PER HEAD	400# @ $81/cwt.	$324	525# @ $82/cwt.	$430	
3. Feed:					
Corn equivalent, $3.40/bu.		--		--	
Protein, salt, minerals, & additives, $13/cwt.	100#	$ 13	20#	$ 3	
Corn silage, $25/T.		--		--	
Mixed hay, $60/T.	.8 T.	48		--	
Grass hay, $55/T.		--		--	
Pasture, $7.50/AUM	5.5 AUM	41	5 AUM	37	
4. TOTAL FEED COSTS		$102		$ 40	
5. Machinery costs, feed preparation, etc.		$ 5		$ 2	
6. Veterinary & medicine		4		3	
7. Other livestock materials & services[1]		11		10	
8. Util., ins., repair, misc.		3		2	
9. Death loss[2]		7		4	
10. Operating interest[3]		54		37	
11. TOTAL OTHER VARIABLE COSTS (add Lines 5 through 10)		$ 84		$ 58	
12. TOTAL ALL VARIABLE COSTS (Lines 2 + 4 + 11)		$510		$528	
13. INCOME OVER VARIABLE COSTS[4] (Line 1 minus Line 12)		$ 22		$ 4	
14. Labor hours		3.5 hrs.		1 hr.	

[1] Includes hauling, yardage, commissions, etc.

[2] 2% and 1% of purchase cost respectively.

[3] Purchase cost (Line 2) + 50% of sum of Lines 4 through 9 times percent of year owned times 14% interest.

[4] Other cash costs such as real estate and property taxes, building insurance and repairs, hired labor, and other overhead expenses are to be accounted for on Form 6, FM 7536.

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TABLE L-11. BEEF STEER CALF FEEDING BUDGETS

Description of Production: Buy good to choice, medium condition, sell as 75% choice grade.

	FULL FEED		WINTER SILAGE, FINISH		MY FARM
Production:					
Month of purchase/sale	October/June		October/August		
Days owned	255		280		
Gain per head	600 lbs.		600 lbs.		
Average daily gain	2.35 lbs.		2.14 lbs.		
1. GROSS RECEIPTS PER HEAD	1050# @ $71/cwt.	$745	1050# @ $71/cwt.	$745	
2. PURCHASE COST PER HEAD[1]	450# @ $80/cwt.	$350	450# @ $80/cwt.	$350	
3. Feed:					
Corn equivalent, $3.40/bu.	62.3 bu.	$212	43 bu.	$146	
Protein, salt, minerals, & additives, $13/cwt.	400#	52	420#	55	
Corn silage, $25/T.		--	3.5 T.	88	
Mixed hay, $60/T.	500#	15		--	
Grass hay, $55/T.	500#	14		--	
Pasture, $7.50/AUM		--		--	
4. TOTAL FEED COSTS		$293		$289	
5. Machinery costs, feed preparation, etc.		8		9	
6. Veterinary & medicine		4		4	
7. Other livestock materials & services[2]		15		15	
8. Util., ins., repair, misc.		7		7	
9. Death loss[3]		10		10	
10. Operating interest[4]		51		56	
11. TOTAL OTHER VARIABLE COSTS (add Lines 5 through 10)		$ 95		$101	
12. TOTAL ALL VARIABLE COSTS (Lines 2 + 4 + 11)		$738		$740	
13. INCOME OVER VARIABLE COSTS[5] (Line 1 minus Line 2)		$ 7		$ 5	
14. Labor hours		3.5 hrs.		4 hrs.	

[1] Price adjustment (seasonal and out-state purchase) from Kansas City market.

[2] Includes hauling, yardage, commissions, etc.

[3] 2% of purchase cost (Line 2) + 1% of total feed costs (Line 4).

[4] Purchase cost (Line 2) + 50% of sum of Lines 4 through 9 times percent of year owned times 14% interest.

[5] Other cash costs (real estate and property taxes, building insurance, repairs, hired labor, and miscellaneous) and fixed costs (operator labor, interest and depreciation on livestock buildings, machinery, and equipment) are accounted for on Form 6, FM 7536.

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TABLE L-12. BEEF STEER CALF FEEDING BUDGET (DEFERRED SYSTEM)

Description of Production: Buy good to choice, medium condition, sell as 75% choice grade.

	WINTER, GRAZE, FINISH		MY FARM
Production:			
Month of purchase/sale	October/Dec. or Jan.		
Days owned	448		
Gain per head	725 lbs.		
Average daily gain	1.62 lbs.		
1. GROSS RECEIPTS PER HEAD	1100# @ $71/cwt.	$781	
2. PURCHASE COST PER HEAD[1]	400# @ $81/cwt.	$324	
3. Feed:			
Corn equivalent, $3.40/bu.	46 bu.	$156	
Protein, salt, minerals, & additives, $13/cwt.	350 lbs.	45	
Corn silage, $25/T.		--	
Mixed hay, $60/T.		--	
Grass hay, $55/T.	2700 lbs.	74	
Pasture, $7.50/AUM	4 AUM	30	
4. TOTAL FEED COSTS		$305	
5. Machinery costs, feed preparation, etc.		$ 9	
6. Veterinary & medicine		4	
7. Other livestock materials & services[2]		16	
8. Util., ins., repair, misc.		5	
9. Death loss[3]		10	
10. Operating interest[4]		86	
11. TOTAL OTHER VARIABLE COSTS (add Lines 5 through 10)		$130	
12. TOTAL ALL VARIABLE COSTS (Lines 2 + 4 + 11)		$759	
13. INCOME OVER VARIABLE COSTS[5] (Line 1 minus Line 12)		$ 22	
14. Labor hours		5 hrs.	

[1] Price adjustment (seasonal and out-state purchase) from Kansas City market.

[2] Includes hauling, yardage, commissions, etc.

[3] 2% of purchase cost (Line 2) + 1% of total feed costs (Line 4).

[4] Purchase cost (Line 2) + 50% of sum of Lines 4 through 9 times percent of year owned times 14% interest.

[5] Other cash costs (real estate and property taxes, building insurance, repairs, hired labor, and miscellaneous) and fixed costs (operator labor, interest, and depreciation on livestock buildings, machinery, and equipment) are accounted for on Form 6, FM 7536.

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TABLE L-13. BEEF HEIFER FEEDING BUDGETS

Description of Production: Buy good to choice, medium condition, sell as 75% choice grade.

		WINTER SILAGE, FINISH		FULL FEED		MY FARM
	Production:					
	Month of purchase/sale	October/July		September/January		
	Days owned	250		130		
	Gain per head	500 lbs.		325 lbs.		
	Average daily gain	2 lbs.		2.5 lbs.		
1.	GROSS RECEIPTS PER HEAD	900# @ $69/cwt.	$621	975# @ $69/cwt.	$673	
2.	PURCHASE COST PER HEAD[1]	400# @ $70/cwt.	$280	650# @ $66/cwt.	$429	
3.	Feed:					
	Corn equivalent, $3.40/bu.	36 bu.	$122	37 bu.	$126	
	Protein, salt, minerals, & additives, $13/cwt.	400 lbs.	52	200 lbs.	26	
	Corn silage, $25/T.	3.25 T.	81		--	
	Mixed hay, $60/T.		--		--	
	Grass hay, $55/T.		--	570 lbs.	16	
	Pasture, $7.50/AUM		--		--	
4.	TOTAL FEED COSTS		$255		$164	
5.	Machinery costs, feed preparation, etc.		8		6	
6.	Veterinary & medicine		4		4	
7.	Other livestock materials & services[2]		12		14	
8.	Util., ins., repair, misc.		6		4	
9.	Death loss[3]		8		5	
10.	Operating interest[4]		41		26	
11.	TOTAL OTHER VARIABLE COSTS (add Lines 5 through 10)		$ 79		$ 59	
12.	TOTAL ALL VARIABLE COSTS (Lines 2 + 4 + 11)		$614		$652	
13.	INCOME OVER VARIABLE COSTS[5] (Line 1 minus Line 12)		$ 7		$ 21	
14.	Labor hours		3 hrs.		3 hrs.	

[1] Price adjustment (seasonal and out-state purchase) from Kansas City market.

[2] Includes hauling, yardage, commissions, etc.

[3] Calf: 2% of purchase cost (Line 2) + 1% of total feed costs (Line 4).
Yearling: 1% of purchase cost (Line 2) + .5% of total feed cost (Line 4).

[4] Purchase cost (Line 2) + 50% of sum of Lines 4 through 9 times percent of year owned times 14% interest.

[5] Other cash costs (real estate and property taxes, building insurance, repairs, hired labor, and miscellaneous) and fixed costs (operator labor, interest and depreciation on livestock buildings, machinery, and equipment) are accounted for on Form 6, FM 7536.

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TABLE L-14. CHOICE YEARLING STEER FEEDING BUDGETS

Description of Production: Buy good to choice, medium condition, sell 75% choice grade.

	WINTER SILAGE, FINISH		FULL FEED GRAIN		MY FARM
Production:					
Month of purchase/sale	November/July		October/March		
Days owned	220		135		
Gain per head	500 lbs.		375 lbs.		
Average daily gain	2.3 lbs.		2.75 lbs.		
1. GROSS RECEIPTS PER HEAD	1100#@$71/cwt.	$781	1125#@$71/cwt.	$799	
2. PURCHASE COST PER HEAD[1]	600#@$73/cwt.	$438	750#@$71/cwt.	532	
3. Feed:					
Corn equivalent, $3.40/bu.	35 bu.	$119	46 bu.	$156	
Protein, salt, minerals, & additives, $13/cwt.	275 lbs.	36	170 lbs.	22	
Corn silage, $25/T.	3 T.	75		--	
Mixed hay, $60/T.		--		--	
Grass hay, $55/T.	300 lbs.	8	525 lbs.	14	
Pasture, $7.50/AUM		--		--	
4. TOTAL FEED COSTS		$238		$192	
5. Machinery costs, feed preparation, etc.		8		6	
6. Veterinary & medicine		4		4	
7. Other livestock materials & services[2]		16		16	
8. Util., ins., repair, misc.		6		4	
9. Death loss[3]		4		5	
10. Operating interest[4]		49		34	
11. TOTAL OTHER VARIABLE COSTS (add Lines 5 through 10)		$ 87		$ 69	
12. TOTAL ALL VARIABLE COSTS (Lines 2 + 4 + 11)		$763		$793	
13. INCOME OVER VARIABLE COSTS[5] (Line 1 minus Line 12)		$ 18		$ 7	
14. Labor hours		3.5 hrs.		3 hrs.	

[1] Price adjustment (seasonal and out-state purchase) from Kansas City market.

[2] Includes hauling, yardage, commissions, etc.

[3] .75% of purchase cost (Line 2) + .3% of total feed costs (Line 4).

[4] Purchase cost (Line 2) + 50% of sum of Lines 4 through 9 times percent of year owned times 14% interest.

[5] Other cash costs (real estate and property taxes, building insurance, repairs, hired labor, and miscellaneous) and fixed costs (operator labor, interest and depreciation on livestock buildings, machinery, and equipment) are accounted for on Form 6, FM 7536.

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TABLE L-15. PLAIN YEARLING STEER FEEDING BUDGETS

Description of Production: Buy standard to good, medium condition, sell good grade.

		HIGH GRAIN		LOW GRAIN		MY FARM
	Production:					
	Month of purchase/sale	October/March		September/April		
	Days owned	150		182		
	Gain per head	400 lbs.		400 lbs.		
	Average daily gain	2.67 lbs.		2.2 lbs.		
1.	GROSS RECEIPTS PER HEAD	1150# @ $68/cwt.	$782	1150# @ $68/cwt.	$782	
2.	PURCHASE COST PER HEAD[1]	750# @ $66/cwt.	$495	750# @ $66/cwt.	$495	
3.	Feed:					
	Corn equivalent, $3.40/bu.	48 bu.	$163	11 bu.	$ 37	
	Protein, salt, minerals, & additives, $13/cwt.	175 lbs.	23	250 lbs.	33	
	Corn silage, $25/T.		--	5 T.	125	
	Mixed hay, $60/T.		--		--	
	Grass hay, $55/T.	600 lbs.	16		--	
	Pasture, $7.50/AUM		--		--	
4.	TOTAL FEED COSTS		$202		$195	
5.	Machinery costs, feed preparation, etc.		8		10	
6.	Veterinary & medicine		4		4	
7.	Other livestock materials & services[2]		16		16	
8.	Util., ins., repair, misc.		6		6	
9.	Death loss[3]		4		4	
10.	Operating interest[4]		35		43	
11.	TOTAL OTHER VARIABLE COSTS (add Lines 5 through 10)		$ 73		$ 83	
12.	TOTAL ALL VARIABLE COSTS (Lines 2 + 4 + 11)		$770		$773	
13.	INCOME OVER VARIABLE COSTS[5] (Line 1 minus Line 12)		$ 12		$ 9	
14.	Labor hours		3 hrs.		3.5 hrs.	

[1] Price adjustment (seasonal and out-state purchase) from Kansas City market.

[2] Includes hauling, yardage, commissions, etc.

[3] .75% of purchase cost (Line 2) + .3% of total feed costs (Line 4).

[4] Purchase cost (Line 2) + 50% of sum of Lines 4 through 9 times percent of year owned times 14% interest.

[5] Other cash costs (real estate and property taxes, building insurance, repairs, hired labor, and miscellaneous) and fixed costs (operator labor, interest and depreciation on livestock buildings, machinery, and equipment) are accounted on Form 6, FM 7536.

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TABLE L-16. DAIRY COW BUDGET, 10,000 LBS. MILK, FLUID MARKET

Description of Production: 10,000 pounds milk or 350 pounds butterfat sold per year. 30% of cows replaced per year with raised replacements. Average cow weight 1,200 pounds. 2% cow death loss per year, 85% calving rate every 12 months. 10% calves die before sold or weaned. Sell all bull calves early. Keep all heifers, sell any surplus at 500-700 pounds. If keep dairy steers, add appropriate budget.

			MY FARM
1. Details of gross receipts:			
Milk @ $14.25/cwt. gross price	100 x $14.25/cwt.	$1,425	
Share of cull cow	1,200 x 98% x 30% x 50¢	176	
Young stock,[1] bull calf	.38 x $80	30	
heifer calf	.08 x 500 lbs. x 72¢	29	
2. GROSS RECEIPTS PER COW		$1,660	
3. Feed (doesn't include waste):			
Cow: Grain concentrate, $9.75/cwt.[2]	4,500 lbs. (60-76 bu. corn)[3]	$ 439	
Forage:[7]			
Hay, $72/T.	2.3 T. alf. & mixed hay	166	
Corn silage, $25/T.	6.3 T. corn or sorgo sil.	158	
Pasture, $7.50/AUM	2 AUM	15	
Replacement share:			
Starter & grain, $12/cwt.	950 lbs.	114	
Hay, $60/T.	1.5 T. mixed & grass hay	90	
Pasture, $7.50/AUM	4 AUM	30	
4. TOTAL FEED COSTS		$1,012	
5. Machinery operating costs, feed preparation, etc.		$ 59	
6. Veterinary & medicine		28	
7. Other livestock materials & services[4]		139	
8. Utilities		40	
9. Other[6]		--	
10. Operating interest[5]		44	
11. TOTAL OTHER VARIABLE COSTS (add Lines 5 through 10)		$ 310	
12. TOTAL ALL VARIABLE COSTS (Line 4 + Line 11)		$1,322	
13. INCOME OVER VARIABLE COSTS[6] (Line 2 minus Line 12)		$ 338	
14. Labor hours		55 hrs.	
15. Breeding herd investment	$1,200 cow, $180 replacement share	$1,380	

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TABLE L-17. DAIRY COW BUDGET, 12,500 LBS. MILK, FLUID MARKET

Description of Production: 12,500 pounds milk or 437 pounds butterfat per year. 30% of cows replaced per year with raised replacements. Average cow weight of 1,200 pounds. 2% cow death loss per year. 85% calving rate every 12 months. 10% calves die before sold or weaned. Sell all bull calves early. Keep all heifers, sell any surplus at 500-700 pounds. If keep dairy steers, add appropriate budget.

			MY FARM
1. Details of gross receipts:			
Milk @ $14.25/cwt. gross price	125 x $14.25/c[illegible]	$1,781	
Share of cull cow	1,200 x 98% x 30% x 50c	176	
Young stock,[1] bull calf	.38 x $80	30	
heifer calf	.08 x 500 lbs. x 72¢	29	
2. GROSS RECEIPTS PER COW		$2,016	
3. Feed (doesn't include waste):			
Cow: Grain concentrate, $9.75/cwt.[2]	5,200 lbs. (70-88 bu. corn)[3]	$ 507	
Forage:[7]			
Hay, $72/T.	2.3 T. alf. & mixed hay	166	
Corn silage, $25/T.	6.3 T. corn or sorgo. sil.	158	
Pasture, $7.50/AUM	2 AUM	15	
Replacement share:			
Starter & grain, $12/cwt.	950 lbs.	114	
Hay, $60/T.	1.5 T. mixed & grass hay	90	
Pasture, $7.50/AUM	4 AUM	30	
4. TOTAL FEED COSTS		$1,080	
5. Machinery costs, feed preparation, etc.		$ 66	
6. Veterinary & medicine		33	
7. Other livestock materials & services[4]		160	
8. Utilities		43	
9. Other[6]		--	
10. Operating interest[5]		48	
11. TOTAL OTHER VARIABLE COSTS (add Lines 5 through 10)		$ 350	
12. TOTAL ALL VARIABLE COSTS (Line 4 + Line 11)		$1,430	
13. INCOME OVER VARIABLE COSTS[6] (Line 2 minus Line 12)		$ 586	
14. Labor hours		55 hrs.	
15. Breeding herd investment	$1,200 cow, $180 replacement share	$1,380	

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TABLE L-18. DAIRY COW BUDGET, 12,500 LBS. MILK, FLUID MARKET

BUY REPLACEMENTS

Description of Production: 12,500 pounds milk or 437 pounds butterfat per year. 30% of cows replaced per year with heifer ready to freshen. Average cow weight of 1,200 pounds. 2% cow death loss per year. 85% calving rate every 12 months. 10% calves die before sold or weaned. Sell all calves early.

			MY FARM
1. Details of gross receipts:			
Milk @ $14.25/cwt. gross price	125 x $14.25/cwt.	$1,781	
Share of cull cow	1,200 x 98% x 30% x 50¢	176	
Young stock,[1] bull calf	.38 x $80	30	
heifer calf	.38 x $80	30	
2. GROSS RECEIPTS PER COW		$2,017	
3. REPLACEMENT SHARE PURCHASED	30% x $1,200	$ 360	
4. Feed (doesn't include waste):			
Cow: Grain concentrate, $9.75/cwt.[2]	5,200 lbs. (70-88 bu. corn)[3]	$ 507	
Forage:[7]			
Hay, $72/T.	2.3 T. alf. & mixed hay	166	
Corn silage, $25/T.	6.3 T. corn or sorgo sil.	158	
Pasture, $7.50/AUM	2 AUM	15	
5. TOTAL FEED COSTS		$ 846	
6. Machinery costs, feed preparation, etc.		$ 66	
7. Veterinary & medicine		32	
8. Other livestock materials & services[4]		160	
9. Utilities		43	
10. Other[6]		--	
11. Operating interest[5]		53	
12. TOTAL OTHER VARIABLE COSTS (add Lines 6 through 11)		$ 354	
13. TOTAL ALL VARIABLE COSTS (Lines 3 + 5 + 12)		$1,560	
14. INCOME OVER VARIABLE COSTS[6] (Line 2 minus Line 13)		$ 457	
15. Labor hours		50 hrs.	
16. Breeding herd investment	$1,200 cow	$1,200	

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TABLE L-19. DAIRY COW BUDGET, 15,000 LBS. MILK, FLUID MARKET

Description of Production: 15,000 pounds milk or 525 pounds butterfat sold per year. 30% of cows replaced per year with raised replacements. Average cow weight of 1,200 pounds. 2% cow death loss per year. 85% calving rate every 12 months. 10% calves die before sold or weaned. Sell all bull calves early. Keep all heifers, sell any surplus at 500-700 pounds. If keep dairy steers, add appropriate budget.

			MY FARM
1. Details of gross receipts:			
Milk @ $14.25/cwt. gross price	150 x $14.25/cwt.	$2,138	
Share of cull cow	1,200 x 98% x 30% x 50¢	176	
Young stock,[1] bull calf	.38 x $80	30	
heifer calf	.08 x 500 lbs. x 72¢	29	
2. GROSS RECEIPTS PER COW		$2,373	
3. Feed (doesn't include waste):			
Cow: Grain concentrate, $9.75/cwt.[2]	6,000 lbs. (80-102 bu. corn)[3]	$ 585	
Forage:[7]			
Hay, $72/T.	2.3 T. alf. & mixed hay	166	
Corn silage, $25/T.	6.3 T. corn or sorgo sil.	158	
Pasture, $7.50/AUM	2 AUM	15	
Replacement share:			
Starter & grain, $12/cwt.	950 lbs.	114	
Hay, $60/T.	1.5 T. mixed & grass hay	90	
Pasture, $7.50/AUM	4 AUM	30	
4. TOTAL FEED COSTS		$1,158	
5. Machinery costs, feed preparation, etc.		$ 73	
6. Veterinary & medicine		40	
7. Other livestock materials & services[4]		180	
8. Utilities		45	
9. Other[6]		--	
10. Operating interest[5]		52	
11. TOTAL OTHER VARIABLE COSTS (add Lines 5 through 10)		$ 390	
12. TOTAL ALL VARIABLE COSTS (Line 4 + Line 11)		$1,548	
13. INCOME OVER VARIABLE COSTS[6] (Line 2 minus Line 12)		$ 825	
14. Labor hours		55 hrs.	
15. Breeding herd investment	$1,500 cow, $180 replacement share	$1,680	

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TABLE L-20. DAIRY COW BUDGET, 10,000 LBS. MILK, MANUFACTURED MARKET

Description of Production: 10,000 pounds milk or 350 pounds butterfat sold per year. 30% of cows replaced per year with raised replacements. Average cow weight of 1,200 pounds. 2% cow death loss per year. 85% calving rate every 12 months. 10% calves die before sold or weaned. Sell all bull calves early. Keep all heifers, sell any surplus at 500-700 pounds. If keep dairy steers, add appropriate budget.

			MY FARM
1. Details of gross receipts:			
Milk @ $13.25/cwt. gross price	100 x $13.25/cwt.	$1,325	
Share of cull cow	1,200 x 98% x 30% x 50¢	176	
Young stock,[1] bull calf	.38 x $80	30	
heifer calf	.08 x 500 lbs. x 72¢	29	
2. GROSS RECEIPTS PER COW		$1,560	
3. Feed (doesn't include waste):			
Cow: Grain concentrate, $9.75/cwt.[2]	4,500 lbs. (60-76 bu. corn)[3]	$ 439	
Forage:[7]			
Hay, $72/T.	3.3 T. alf. & mixed hay	238	
Pasture, $7.50/AUM	6 AUM	45	
Replacement share:			
Starter & grain, $12/cwt.	950 lbs.	114	
Hay, $60/T.	1.5 T. mixed & grass hay	90	
Pasture, $7.50/AUM	4 AUM	30	
4. TOTAL FEED COSTS		$ 956	
5. Machinery costs, feed preparation, etc.		$ 56	
6. Veterinary & medicine		24	
7. Other livestock materials & services[4]		127	
8. Utilities		40	
9. Other[6]		--	
10. Operating interest[5]		42	
11. TOTAL OTHER VARIABLE COSTS (add Lines 5 through 10)		$ 289	
12. TOTAL ALL VARIABLE COSTS (Line 4 + Line 11)		$1,245	
13. INCOME OVER VARIABLE COSTS[6] (Line 2 minus Line 12)		$ 315	
14. Labor hours		55 hrs.	
15. Breeding herd investment	$1,200 cow, $180 replacement share	$1,380	

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TABLE L-21. DAIRY COW BUDGET, 12,500 LBS. MILK, MANUFACTURED MARKET

Description of Production: 12,500 pounds milk or 437 pounds butterfat per year. 30% of cows replaced per year with raised replacement. Average cow weight of 1,200 pounds. 2% cow death loss per year. 85% calving rate every 12 months. 10% calves die before sold or weaned. Sell all bull calves early. Keep all heifers, sell any surplus at 500-700 pounds. If keep dairy steers, use appropriate budget.

			MY FARM
1. Details of gross receipts:			
Milk @ $13.25/cwt. gross price	125 x $13.25/cwt.	$1,656	
Share of cull cow	1,200 x 98% x 30% x 50¢	176	
Young stock,[1] bull calf	.38 x $80	30	
heifer calf	.08 x 500 lbs. x 72¢	29	
2. GROSS RECEIPTS PER COW		$1,891	
3. Feed (doesn't include waste):			
Cow: Grain concentrate, $9.75/cwt.[2]	5,200 lbs. (70-88 bu. corn)[3]	$ 507	
Forage:[7]			
Hay, $72/T.	3.3 T. alf. & mixed hay	238	
Pasture, $7.50/AUM	6 AUM	45	
Replacement share:			
Starter & grain, $12/cwt.	950 lbs.	114	
Hay, $60/T.	1.5 T. mixed & grass hay	90	
Pasture, $7.50/AUM	4 AUM	30	
4. TOTAL FEED COSTS		$1,024	
5. Machinery costs, feed preparation, etc.		$ 64	
6. Veterinary & medicine		27	
7. Other livestock materials & services[4]		140	
8. Utilities		42	
9. Other[6]		--	
10. Operating interest[5]		45	
11. TOTAL OTHER VARIABLE COSTS (add Lines 5 through 10)		$ 318	
12. TOTAL ALL VARIABLE COSTS (Line 4 + Line 11)		$1,342	
13. INCOME OVER VARIABLE COSTS[6] (Line 2 minus Line 12)		$ 549	
14. Labor hours		55 hrs.	
15. Breeding herd investment	$1,200 cow, $180 replacement share	$1,380	

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TABLE L-22. REPLACEMENT DAIRY HEIFER BUDGET

Description of Production: Raising a day-old dairy heifer to 24-26 months of age ready to freshen. The requirements below are for one heifer for the entire two-year period

			MY FARM
1. Details of gross receipts: Day-old heifer kept for 24-26 months ready to go into milking herd	Value of bred heifer ready to freshen	$1,200	
2. GROSS RECEIPTS PER HEIFER		$1,200	
3. VALUE OF DAY-OLD HEIFER		$ 120	
4. Feed:			
Concentrate:			
Milk replacer, $25/cwt.	50 lbs.	$ 13	
Starter, $11/cwt.	100 lbs.	11	
Growing ration, $10/cwt.	400 lbs.	40	
Grain mix, $10/cwt.	1,300 lbs.	130	
Forage:			
Hay, $60/T.	3 T.	180	
Pasture, $7.50/AUM	9 AUM	68	
5. TOTAL FEED COSTS		$ 442	
6. Machinery costs, feed preparation, etc.		$ 5	
7. Veterinary & medicine		20	
8. Other livestock materials & services[1]		16	
9. Utilities		4	
10. Dairy buildings, equipment & fence repairs		8	
11. Other		4	
12. Death loss on heifer[2]		18	
13. Operating interest[3]		18	
14. TOTAL OTHER VARIABLE COSTS (add Lines 6 through 13)		$ 93	
15. TOTAL ALL VARIABLE COSTS (Lines 3 + 5 + 14)		$ 655	
16. INCOME OVER VARIABLE COSTS[4] (Line 2 minus Line 15)		$ 545	
17. Labor hours		20 hrs.	
18. Breeding herd investment		$600	

[1] Includes nipple pails, bedding, and breeding charge.

[2] Death loss estimated at 10%, largely occurring before weaning. Value of day-old heifer plus value of milk replacer, starter, and grower times 10%.

[3] One-fourth of sum of Lines 5 through 12 times 14% interest.

[4] Other cash costs such as insurance, real estate and property taxes, and hired labor are to be accounted for on Form 6, FM 7536.

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TABLE L-23. GROWING DAIRY FEEDER STEER BUDGET

Description of Production: Raise a day-old dairy Holstein steer to 6 months of age weighing 360-400 pounds. Estimate calf will weigh 80 pounds at birth.

			MY FARM
Production:			
Pounds gain per head	300 lbs.		
Days owned	180 days		
Average daily gain	1.7 lbs.		
1. GROSS RECEIPTS PER HEAD	380# @ $68/cwt.	$258	
2. VALUE OF DAY-OLD CALF	80# at birth	$ 80	
3. Feed:			
Concentrate:			
Milk replacer, $25/cwt.	50 lbs.	$ 13	
Starter, $11/cwt.	100 lbs.	11	
Growing ration, $10/cwt.	400 lbs.	40	
Forage:			
Hay, $60/T.	.15 T. or 300 lbs.	9	
Pasture, $7.50/AUM	.3 AUM	3	
4. TOTAL FEED COSTS		$ 76	
5. Machinery costs, feed preparation, etc.		$ 4	
6. Veterinary & medicine		9	
7. Other livestock materials & services[1]		8	
8. Utilities		2	
9. Death loss[2]		10	
10. Operating interest[3]		9	
11. TOTAL OTHER VARIABLE COSTS (add Lines 5 through 10)		$ 42	
12. TOTAL ALL VARIABLE COSTS (Lines 2 + 4 + 11)		$198	
13. INCOME OVER VARIABLE COSTS[4] (Line 1 minus Line 12)		$ 60	
14. Labor hours		10 hrs.	

[1] Includes hauling, yardage, commission, advertising, bedding, etc.

[2] Death loss estimated at 10% occurring largely before weaning. Value of day-old calf plus value of milk replacer and starter times 10%.

[3] Purchase cost (Line 2) + 50% of sum of Lines 4 through 9 times percent of year owned times 14% interest.

[4] Other cash costs such as real estate and property taxes, building insurance and repair, hired labor, and miscellaneous expense are to be accounted for on Form 6, FM 7536.

FOOTNOTES FOR DAIRY BUDGETS:

[1] For young stock needs and sales per dairy cow, assume:
85% calving rate every 12 months.
Half of calves born are heifers.
10% of all calves born, die before sold.
Sell all bull calves within 14 days.
Keep all heifers, wean, grow out, breed, and any surplus will be sold weighing 500 lbs.

Example: For each cow in herd each year:
1 cow = .85 calf x 10% loss = .085 or .09 loss.
.85 minus .09 = .76 live calf each year (.38 are heifers, .38 are bull calves).
At 30% culling rate, will need .30 heifer per year for replacement.
Raising .38 heifer; then .38 minus .30 = .08 heifer to sell.
Young stock sales per cow per year would be:

.38 bull calves x $60 =	$23.00
.08 heifer x 500 lbs. x 48¢ =	19.00
	$42.00

[2] Corn at $3.40 per bu. and SBOM at $13/cwt. plus $1.50/cwt. for minerals, vitamins, grinding and mixing.

[3] Corn may be 90-95% of concentrate ration when only alfalfa is fed. Corn may be 70-75% of the concentrate when both corn silage and alfalfa hay are fed.

[4] Includes milk hauling, co-op charges, capital retained, parlor supplies, DHI, and breeding and cattle marketing charges.

[5] One-half of sum of Lines 4 through 9 times percent of year owned (50%) times 14% interest. Doesn't include interest on investment in cattle, facilities, and equipment.

[6] Other cash costs such as real estate and property taxes, building insurance and repairs, hired labor, and miscellaneous expense are to be accounted for on Form 6, FM 7536. These costs on a per cow basis may include: $15 for taxes, $20 insurance and building repairs, and $160-$180 labor charge for a total cost $200-$210 per cow. This doesn't include depreciation, or debt servicing on cows and facilities.

[7] Procedure for converting hay, silage, and pasture needs per dairy cow:

Forage needs are best calculated on a dry matter basis. Use the following as a guide for percent dry matter: hay, 90%; corn silage, 30%; haylage, 40%; and pasture, 20%. The dairy forage intake on a dry matter basis is about 2.1% of the cow's average body weight.

$$\text{Forage intake} = \frac{2.1\% \times \text{body weight}}{100} = \text{lbs. D.M. per day}$$

For a cow weighing 1,300 lbs., forage intake would be:

$$\frac{2.1\% \times 1{,}300}{100} = 27.3 \text{ lbs. D.M. per day}$$

Forage intake for a year can be calculated as follows:

$$\frac{\text{Lbs. D.M. per day} \times 365 \text{ days}}{\% \text{ D.M. of forage}} = \text{Lbs. forage per year}$$

$$\frac{27.3 \times 365}{90\% \text{ (hay)}} = 11{,}072 \text{ lbs. or } 5.5 \text{ tons hay}$$

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(cont.)

7 Continued

Select the forage that you can best produce:

5.5 tons hay equivalent at 90% dry matter,
OR 14.6 tons corn or sorghum silage at 30-35% D.M. (33%),
OR 12.1 tons hay crop silage or haylage at 35-50% D.M. (40%),
OR 132.6 pounds of good pasture per day at 20% D.M.

Typical combinations to supply 5.5 tons hay equivalent:

No pasture with:

Half D.M. from hay and half D.M. from silage:
2.8 tons hay
7.5 tons corn or sorghum silage or 6.2 tons hay crop silage

OR Limited hay and heavy silage feeding:
1.0 ton hay
12.0 tons corn or sorghum silage or 9.9 tons hay crop silage

OR Limited silage and heavy hay feeding:
3.6 tons hay
5.0 tons corn or sorghum silage or 3.8 tons hay crop silage

2 months pasture with:

Equal hay and silage:
2.3 tons hay
6.3 tons corn or sorghum silage or 5.2 tons hay crop silage

OR Hay alone:
4.8 tons hay

OR Silage and limited hay:
1.0 ton hay
10.0 tons corn or sorghum silage or 8.3 tons hay crop silage

6 months pasture with:

Equal hay and silage:
1.6 tons hay
4.4 tons corn or sorghum silage or 3.6 tons hay crop silage

OR Hay alone:
3.3 tons hay

OR Silage and limited hay:
1.0 ton hay
6.0 tons corn or sorghum silage or 5.0 tons hay crop silage

The above forage rations are based on minimum hay feeding of about 5 lbs. per head per day. Where silage is fed, a minimum of 27 lbs. of corn or sorghum silage is offered (or 20 lbs. hay crop silage) per day. This is probably as low or lower than most dairymen will want to feed if they choose to feed silage at all.

Even on pasture we are assuming that 5 lbs. of hay will be offered daily.

These forage rations are based upon the amount needed and actually to be consumed. Since losses from standing crop to time of consumption range from a very conservative 10% to 20% or more, allowance must be made between expected production per acre and actual needs. It is best to use at least a 15% allowance to cover losses in normal operation.

[7] Continued

Corn and sorghum silages are considered to be comparable; i.e., the two silages will be consumed in approximately equal quantities. However, it must be recognized that the energy value of corn silage is considerably higher--60-70 therms as compared to 50 to 60 therms of net energy per 100 lbs. dry matter. Consequently, more grain will be needed where sorghum silage is fed.

More grain will be needed, too, where hay crop silages are fed. Although in the case of hay crop silages there will be some savings in protein needed in grain mix as compared to when corn or sorghum silage is fed.

The quality of forage can vary widely. This should always be remembered! Further, quantity will not make up for quality. Actually, a lower quantity of poorer quality will be accepted by all animals. An annual forage testing program is recommended.

TABLE L-24. SHEEP BUDGET - ONE RAM FLOCK

Description of Production: Winter lambing in December and January. Market lambs in May and June. 130% lamb crop less 25% replacement rate (4-5% death loss plus 20% ewe replacement). Sell lambs weighing 100 pounds. Percent lamb crop to sell is 105%. Assumes good management with crossbred Whiteface ewes. Figures rounded to 50¢.

			MY FARM
1. Details of gross receipts:			
Lambs	105% lamb crop x 100# x 72¢	$76.00	
Cull ewes	120# x 20% = 24# x 15¢	3.50	
Wool	10# x $1.35/lb.[1]	13.50	
2. GROSS RECEIPTS PER EWE		$93.00	
3. Feed:			
Corn, $3.40/bu.	3.3 bu.	$11.00	
Hay, $60/T.	.33 T.	20.00	
Pasture, $7.50/AUM	1.4 AUM	10.50	
Protein, salt, minerals	25 to 28 lbs. x 12¢/lb.	3.00	
4. TOTAL FEED COSTS		$44.50	
5. Marketing costs		$ 3.00	
6. Breeding charge (ram depr.)		2.00	
7. Veterinary, supplies, shearing, and bedding		5.00	
8. Miscellaneous		2.00	
9. Operating interest[2]		4.00	
10. TOTAL OTHER VARIABLE COSTS (add Lines 5 through 9)		$16.00	
11. TOTAL ALL VARIABLE COSTS (Line 4 + Line 10)		$60.50	
12. INCOME OVER VARIABLE COSTS[3] (Line 2 minus Line 11)		$32.50	
13. Labor hours		3 hrs.	
14. Breeding herd investment	Ewe, replacement, and share of ram	$90.00	

[1] Includes price for wool and incentive payment.

[2] One-half of sum of Lines 4 through 8 times percent of year owned times 14% interest.

[3] Other cash costs such as real estate and property taxes, building insurance and repair can be accounted for on Form 6, FM 7536.

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HO-58
FBMA III

TABLE 1.-25. FEEDER LAMB BUDGET FOR 100 HEAD

Description of Production: Purchase 100 Lambs weighing 70 pounds, gradually put on full feed. Sell 85 days later weighing 110 pounds (40 lbs. gain per head or .5 lbs. gain per head per day); 5% death loss; self-fed 40:60 roughage, concentrate ration.

				MY FARM
1.	Details of gross receipts:			
	Lambs	95 sold x 110# x 72¢	$7,524	
	Wool[1]	2-4# x 95 hd. x $1.10	314	
2.	GROSS RECEIPTS/100 HEAD		$7,838	
3.	PURCHASED FEEDER LAMBS	100 hd. x 70# x 69¢	$4,830	
4.	Feed:			
	Corn equivalent, $3.40/bu.	2.5 bu./hd.	$ 850	
	Protein and mineral supplement, $12/cwt.	15 lbs./hd.	180	
	Mixed hay, $55/T.	.06 T./hd.	330	
	Molasses, $160/T.	12#/hd.	96	
5.	TOTAL FEED COSTS		$1,456	
6.	Marketing costs (buying and selling)	$2-$2.50/hd.	$ 225	
7.	Veterinary and medicine	$1/hd.	100	
8.	Shearing	$1-$1.50/hd.	125	
9.	Miscellaneous, including fuel and equipment use	$1/hd.	100	
10.	Operating interest[2]		240	
11.	TOTAL OTHER VARIABLE COSTS (add Lines 6 through 10)		$ 790	
12.	TOTAL ALL VARIABLE COSTS (Line 3 + Line 5 + Line 11)		$7,076	
13.	INCOME OVER VARIABLE COSTS[3] (Line 2 minus Line 12)		$ 762	
14.	Labor hours	For 100 lambs per day	.7-1 hr.	

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[1] Depending on time of year purchased and/or sold, feeder lambs may need to be sheared. Estimate of 2-4 lbs. wool per lamb sheared.

[2] Sum of Lines 3 through 9 times 1/4 of year x 14% interest.

[3] Other cash costs such as real estate and property taxes, building insurance and repairs, hired labor, and other overhead expenses are to be accounted for on Form 6, FM 7536.

5/81 E. Wiggins

TABLE L-26. LAYING HEN BUDGET, COMMERCIAL FLOCK

Description of Production: 1,000 started pullets, purchased at 20 weeks of age, kept for 12 months of lay, 252 salable eggs per hen housed.

			MY FARM
1. Detail of gross receipts:[4]			
Eggs	20,370 doz. @ 56¢	$11,407	
Spent hens	900 x 4 lbs. @ 10¢	360	
2. GROSS RECEIPTS PER 1,000 STARTED PULLETS		$11,767	
3. Started pullets	1,000 @ $2.50	$ 2,500	
4. Feed, bulk	80,000 lbs. @ 9¢	7,200	
5. Medications		140	
6. Other cash costs[1]		370	
7. TOTAL ALL VARIABLE COSTS (add Lines 3 through 6)		$10,210	
8. INCOME OVER VARIABLE COSTS[2] (Line 2 minus Line 7)		$ 1,557	
9. Hours labor per year[3] (daily routine chores)		200 to 800 hrs.	

TABLE L-27. LAYING HEN BUDGET, FARM FLOCK

Description of Production: 100 laying hens (average number maintained in the flock) purchased as day-old pullet chicks, kept for 12 months of lay, 200 eggs per heavy breed hen, 228 eggs per light breed hen. Note egg income may be higher for hatching egg production, not considered here.

	HEAVY BREED		LIGHT BREED		MY FARM
1. Detail of gross receipts:[4]					
Eggs	1616 doz. @ 55¢	$ 889	1900 doz. @ 55¢	$1045	
Spent hens	86 × 7# @ 15¢	90	86 x 4# x 10¢	34	
2. GROSS RECEIPTS PER 100 LAYING HENS		$ 979		$1079	
3. Pullet cost		$ 285		$ 250	
4. Feed	6#/doz. @ 10¢	970	5#/doz. @ 10¢	960	
5. Medications		40		40	
6. Other cash costs[1]		35		35	
7. TOTAL ALL VARIABLE COSTS (add Lines 3 through 6)		$1330		$1285	
8. INCOME OVER VARIABLE COSTS[2] (Line 2 minus Line 7)		-$ 351		-$ 206	

[1] Includes operating interest, utilities, and marketing expense. For farm flock this figure can be highly variable.

[2] Other applicable cash costs such as real estate and personal property taxes, building insurance and repairs, and miscellaneous expense are to be accounted for on Form 6, FM 7536.

[3] This figure is extremely variable depending on type of building, equipment, the degree of automation, and the marketing system used.

[4] No value assigned to poultry manure. Each hen produces about 90-100 lbs./year, or each 100 hens produces 4½ to 5 tons per year.

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TABLE L-28. BROILER BUDGET[4]

Description of Production: 10,000 birds per brood, weigh 3.8 pounds at 8 weeks of age when sold, 2.1 pounds feed per pound gain, 3% mortality.

			MY FARM
1. GROSS RECEIPTS[3] (9,700 birds)	9700 x 3.8 lbs. @ 33¢	$12,164	
2. Chicks	10,000 @ 32¢	3,200	
3. Feed	77,406# @ 9¢	6,967	
4. Fuel and litter		520	
5. Medications		110	
6. Other cash costs[1]		385	
7. TOTAL ALL VARIABLE COSTS (add Lines 2 through 6)		$11,182	
8. INCOME OVER VARIABLE COSTS[2] (Line 1 minus Line 7)		$ 982	
9. Labor hours		160 hrs.	

TABLE L-29. TURKEY BUDGETS[4]

Description of Production: 1,000 heavy type hens purchased and marketed at 18 weeks weighing 15 pounds, 2.7 pounds feed per pound gain, 5% mortality. 1,000 toms purchased and marketed at 22 weeks weighing 28 pounds, 3.4 pounds feed per pound gain, 8% mortality.

	HENS		TOMS		MY FARM
1. GROSS RECEIPTS[3]	950 x 15# @ 43¢	$6,128	920 x 28# @42¢	$10,819	
2. Poults	1,000 @ 80¢	$ 800	1,000 @ $1	$ 1,000	
3. Feed	38,164# @ 9¢	3,435	77,004# @ 9¢	6,930	
4. Fuel and litter		190		190	
5. Medications		155		180	
6. Other cash costs[1]		200		275	
7. TOTAL ALL VARIABLE COSTS (add Lines 2 through 6)		$4,780		$ 8,575	
8. INCOME OVER VARIABLE COSTS[2] (Line 1 minus Line 7)		$1,348		$ 2,244	
9. Labor hours		70 hrs.		70 hrs.	

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[1] Includes operating interest, electricity, water, and marketing expense.

[2] Other applicable cash costs such as real estate and personal property taxes, building insurance and repairs, and miscellaneous expense are to be accounted for on Form 6, FM 7536.

[3] No value placed on broiler or turkey manure-litter. Consider own use and estimate a value as fertilizer or animal feed.

[4] Almost all broilers and turkeys are produced under contract with the grower receiving payment based on number of pounds or birds produced - with the contractor furnishing chicks/poults, feed, and some other items. The grower furnishes facilities, management, labor, and the other cost items relating to the operation and maintenance of the buildings, equipment, roads, utilities, etc.

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TABLE L-28. BROILER BUDGET[4]

Description of Production: 10,000 birds per brood, weigh 3.8 pounds at 8 weeks of age when sold, 2.1 pounds feed per pound gain, 3% mortality.

			MY FARM
1. GROSS RECEIPTS[3] (9,700 birds)	9700 x 3.8 lbs. @ 33¢	$12,164	
2. Chicks	10,000 @ 32¢	3,200	
3. Feed	77,406# @ 9¢	6,967	
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5. Medications		110	
6. Other cash costs[1]		385	
7. TOTAL ALL VARIABLE COSTS (add Lines 2 through 6)		$11,182	
8. INCOME OVER VARIABLE COSTS[2] (Line 1 minus Line 7)		$ 982	
9. Labor hours		160 hrs.	

TABLE L-29. TURKEY BUDGETS[4]

Description of Production: 1,000 heavy type hens purchased and marketed at 18 weeks weighing 15 pounds, 2.7 pounds feed per pound gain, 5% mortality. 1,000 toms purchased and marketed at 22 weeks weighing 28 pounds, 3.4 pounds feed per pound gain, 8% mortality.

	HENS		TOMS		MY FARM
1. GROSS RECEIPTS[3]	950 x 15# @ 43¢	$6,128	920 x 28# @ 42¢	$10,819	
2. Poults	1,000 @ 80¢	$ 800	1,000 @ $1	$ 1,000	
3. Feed	38,164# @ 9¢	3,435	77,004# @ 9¢	6,930	
4. Fuel and litter		190		190	
5. Medications		155		180	
6. Other cash costs[1]		200		275	
7. TOTAL ALL VARIABLE COSTS (add Lines 2 through 6)		$4,780		$ 8,575	
8. INCOME OVER VARIABLE COSTS[2] (Line 1 minus Line 7)		$1,348		$ 2,244	
9. Labor hours		70 hrs.		70 hrs.	

[1] Includes operating interest, electricity, water, and marketing expense.

[2] Other applicable cash costs such as real estate and personal property taxes, building insurance and repairs, and miscellaneous expense are to be accounted for on Form 6, FM 7536.

[3] No value placed on broiler or turkey manure-litter. Consider own use and estimate a value as fertilizer or animal feed.

[4] Almost all broilers and turkeys are produced under contract with the grower receiving payment based on number of pounds or birds produced - with the contractor furnishing chicks/poults, feed, and some other items. The grower furnishes facilities, management, labor, and the other cost items relating to the operation and maintenance of the buildings, equipment, roads, utilities, etc.

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TABLE L-30. ANIMAL SPACE REQUIREMENTS PER HEAD FOR PLANNING FARMSTEAD

BEEF CATTLE

	Shed (sq. ft.)	Dirt lot (sq. ft.)	Paved lot (sq. ft.)	Fenceline bunk or manger space (in.)		Self-feeding silo (in.)
				Full feed	Not full feed	
Two years or older	30	300-1000	Heavy traffic areas; bunks, waterers, etc.	6	26 to 32	6 or less
Yearlings	20	250-800		4	22 to 24	3 to 6
Calves 350-500 lbs.	15	150-500			18 to 22	
Maternity stalls	100-150					
Bulls	100-150					
Confinement bldgs.	18-20					

DAIRY CATTLE

HOUSING

Space allotment for milking herd including feeding and free stall loafing:

Covered confined housing --- 75-100 sq.ft./cow
Open lot system ---------- 100-140 sq.ft./cow
Shelter only for yearlings ----- 30 sq.ft./hd.
Housing for calves either in hutches or nursery with 3' x 4' pens or 18" to 24" wide tie stalls.

Herd size	Maximum no. heifers born in 3 mo. period
35-50	12-16
60-100	20-34

STORAGE FOR ROUGHAGES	Per cow
All baled hay feeding per cow per month	100 cu.ft.
All silage feeding per cow per month	66 cu.ft.
Equal feeding:	
Baled hay/cow/month	50 cu.ft.
Silage/cow/month	33 cu.ft.
FEEDING	
Feed bunks:	
Limited feeding, once or twice daily	24"-30"
Free choice	12"
Self-feeding silage	6"

HOGS

	Concrete floor area (sq. ft.)	Slatted floor area (sq. ft.)	Grain self-feeder space (in.)	
Sow	25-40	15	4	Allow 25-30 sq. ft. outside paved area for feed, water, and exercise for each sow in stall.
Sow and pigs	48-80	30-40	4	
Weaning pigs to 100 lbs.	6	3-4	2	
Growing and fattening	12	8-9	2-3	

WATERING SPACE

If water is available at all times for animals in confinement, provide space for 5 to 10% of total head; for animals on range, double this amount of space.

TABLE L-34. ESTIMATED COSTS FOR BEEF FEEDING FACILITIES: BUNKER SILO, TRACTOR SCOOP, UNLOADING WAGON, FENCELINE BUNKS

Item	200 hd.	300 hd.	400 hd.	600 hd.	1,000 hd.
Handling corral, min. requirement	$ 2,000	$ 2,800	$ 2,800	$ 4,200	$ 4,200
Feedlot fencing and gates	5,000	7,300	9,700	14,450	23,000
Loafing mounds	2,000	3,000	4,000	6,000	9,000
Hay storage (400 lbs./head, $70/ton)	2,800	4,200	5,600	8,400	14,000
Concrete pads, hay self-feeder	400	600	800	1,200	2,000
Fenceline bunks (1 ft./hd., $9/ft.)	1,800	2,700	3,600	5,400	9,000
Concrete pad, bunks (1 ft./hd., $60/ft; 10 ft. length)	1,200	1,800	2,400	3,600	6,000
Waterers, electric wiring, pads	2,100	3,100	4,200	6,400	11,000
Bunker silo (3 tons/hd., $14-$17/ton)	10,200	15,300	19,200	28,200	43,000
Animal shelter (20 sq. ft./hd., $3/sq. ft.)	12,000	18,000	24,000	36,000	60,000
Total Real Estate Investment	$39,500	$58,800	$76,300	$113,850	$181,200
Hay feeder	$ 400	$ 600	$ 800	$ 1,200	$ 2,000
Scoop for tractor	3,850	3,850	3,850	3,850	3,850
Tractor, used	5,000	5,000	6,000	8,000	12,000
Unloading wagon	5,900	5,900	5,900	9,000	10,000
Total Equipment Investment	$15,150	$15,350	$16,550	$ 22,050	$ 27,850
Total All Investment	$54,650	$74,150	$92,850	$135,900	$209,050
Annual depreciation, 10 yr.	$ 5,465	$ 7,415	$ 9,285	$ 13,590	$ 20,905
Investment per head	$ 273	$ 247	$ 232	$ 227	$ 210
Depreciation per head	$ 27.33	$ 24.72	$ 23.21	$ 22.65	$ 20.90

TABLE L-35. ESTIMATED COSTS FOR BEEF FEEDING FACILITIES: UPRIGHT SILO, MECHANICAL FEEDING

Item	200 head	400 head
Handling corral, minimum requirement	$ 2,000	$ 2,800
Feedlot fencing and gates	5,000	9,700
Loafing mounds	2,000	4,000
Hay storage (400 lbs. per head, $70 per ton)	2,800	5,600
Concrete pad, hay self-feeder	400	800
Concrete pad, silage bunk	600	1,200
Electric waterers, concrete pads	2,100	4,200
Electric wiring, mechanical feeder	400	500
Concrete stave silo (3 tons/head), bottom unloader	20,000	40,000
Animal shelter (20 sq. ft./head, $3/sq. ft.)	12,000	24,000
Total Real Estate Investment	$47,300	$ 92,800
Self-feeders, hay	$ 400	$ 800
Silage unloader	6,000	12,000
Mechanical feeder, belt, hopper, transmission, motor, conveyor	3,650	4,650
Bunks, two sides (6 in. per head) with roof	1,600	3,100
Total Equipment Investment	$11,650	$ 20,550
Total All Investment	$58,950	$113,350
Annual depreciation, 10 years life	$ 5,895	$ 11,335
Investment per head	$ 295	$ 283
Depreciation per head	$ 29.48	$ 28.34

TABLE L-36. ESTIMATED COSTS FOR BEEF FEEDING FACILITIES:
HAY AND GRAIN SELF-FED, NO SILAGE

Item	50 head	100 head
Handling corral, minimum requirements	$ 2,000	$ 2,000
Feedlot fencing and gates	1,800	2,500
Loafing mounds	800	1,000
Hay storage (1.7 tons per head, $70 per ton)	5,950	11,900
Concrete pads, grain self-feeder	600	1,200
Concrete pads, hay self-feeder	300	400
Electric waterers, wiring, concrete pads	700	1,200
Animal shelter (20 sq. ft./head @ $3/sq. ft.)	3,000	6,000
Total Real Estate Investment	$15,150	$26,200
Self-feeder, grain	$ 1,400	$ 2,700
Self-feeder, hay	300	400
Total Equipment Investment	$ 1,700	$ 3,100
Total All Investment	$16,850	$29,300
Annual depreciation, 10 years life	$ 1,685	$ 2,930
Investment per head	$ 337	$ 293
Depreciation per head	$ 33.70	$ 29.30

TABLE L-37. ESTIMATED COSTS FOR BEEF FEEDING FACILITIES:
BUNKER SILO; SILAGE, HAY, AND GRAIN SELF-FED

Item	50 head	100 head
Handling corral, minimum requirements	$ 2,000	$ 2,000
Feedlot fencing and gates	1,800	2,500
Loafing mounds	800	1,000
Hay storage (400 lbs. per head, $70 per ton)	700	1,400
Concrete pads, hay self-feeder	300	400
Concrete pads, grain self-feeder	600	1,200
Electric waterers, concrete pads	700	1,200
Bunker silo (3 tons per head, $20 per ton)	3,000	6,000
Animal shelter (20 sq. ft./head @ $3/sq. ft.)	3,000	6,000
Total Real Estate Investment	$12,900	$21,700
Self-feeder, grain	$ 1,400	$ 2,700
Self-feeder, hay	300	400
Self-feeding gate, silage	600	800
Total Equipment Investment	$ 2,300	$ 3,900
Total All Investment	$15,200	$25,600
Annual depreciation, 10 years life	$ 1,520	$ 2,560
Investment per head	$ 304	$ 256
Depreciation per head	$ 30.40	$ 25.60

TABLE L-38. ESTIMATED COSTS FOR DAIRY FACILITIES

Item		Average cost[1]
MILKING BARNS OR PARLORS[2]		
Double 4, herringbone, 45' x 20' including covered holding pen		$22,000-$26,000
Double 3, diagonal parlor, 45' x 20' including covered holding pen		$22,000-$26,000
Single 6, herringbone, not including holding pen		$16,000-$20,000
Single 6, herringbone stall and feeding system		$4,700-$7,000
MILKING EQUIPMENT		
For double 4 herringbone: 4 units, 2" vacuum with feeding system, less storage tank		$12,500
8 units, 3" low line, 2" vacuum with feeding system, less storage tank		18,500
For double 3 diagonal: 6 units, 2" vacuum, 3" milk line		15,000
BULK TANKS		
500 gallon tank, automatic washer and 3 hp compressor		5,800
800 gallon tank, automatic washer and 4 hp compressor		7,300
1,000 gallon tank, automatic washer and dual 3 hp compressor		9,200
1,500 gallon tank, automatic washer and dual 3 hp compressor		10,600
2,000 gallon tank, automatic washer and dual 4 hp compressor		13,500
OTHER ITEMS		
Water conditioner, 22 grain		600
Cleaning in place unit, need one per milking unit	Each	100
High pressure water pump (for clean-up)		375
Alternator, 30 kw		2,800
Alternator, 25 kw		2,400
Bulk feed storage tank, 8 ton capacity		1,050
Steel pipe, 2"	Per ft.	9
Steel pipe, 3", stainless steel	Per ft.	11
Loafing barn with free stalls, concrete alleys and mangers, complete installation	Per stall	$250-$350
Utah free stalls (open side, 2-way roof)	Per stall	$150-$200
Concrete for walkways from silage or hay areas to loafing area to parlor (figure 80-100 sq. ft./cow @ $1.25/sq. ft.)	Per cow	$100-$125
Animal waste control facilities	Per cow	$100-$200
CALF RAISING FACILITIES:		
Individual stalls or calf hutches	Each	$60-$70
Shed space after weaning	Per calf	$35-$40

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[1] Prepared from prices obtained in southwest Missouri, January 1981. Estimates include labor and/or installation.

[2] Varies by type of construction and installation.

TABLE L-39. ESTIMATED COST FOR FACILITIES FOR LAYING HENS (10,000 BIRD UNIT, ENVIRONMENT CONTROLLED)

Item	Investment
Housing (includes egg cooling room and egg handling area plus ventilation system), insulated, windowless. Does not include site preparation and bringing utilities to the building.	$32,000
Equipment:	
Cages (including automatic waterers and feed trough)	4,700
Electric motorized feed cart and battery charger, bin, and accessories	3,200
Egg cart (manual)	350
Egg cooling unit	1,800
Garden tractor, twin blade scraper, and floor cross auger	3,400
Bulk feed bin and auger	1,500
Power sprayer	550
Miscellaneous equipment	500
Total Investment	$48,000

Depreciation: Housing, 15 years
Equipment, 7 years

Estimated annual repair cost 2% (buildings and equipment)

TABLE L-40. ESTIMATED COST OF BROODING FACILITIES FOR BROILERS AND TURKEYS (10,000 BIRD UNIT)

Item	Investment	
	Broilers	Turkeys
Housing	$14,000	$17,000
Equipment:		
Automatic feeders	3,000	3,300
Automatic waterers	1,300	1,600
Gas brooders	1,500	2,200
Bulk feed bin and auger	950	1,100
Small founts	150	250
Medicator (tank)	300	300
Total Investment	$21,200	$25,750

Depreciation: Housing, 15 years
Equipment, 7 years

Estimated annual repair cost 2% (bldgs. & equip.)

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Farm Mgt. Ext.
Univ. of Mo.

FORM 3
SUMMARY: FARM INVESTMENT CAPITAL

HO-68
FBMA III
Present Plan____
Alternative No.____

	Item & description	Year to invest	New cost	Average value[1]	Total value
	(1)		(2)	(3)	(4)
1	Breeding livestock (present or alternative):				
2	Cows ________(units) x $________/unit =			$	
3	Sows ________(units) x $________/unit =				
4	Other ________(units) x $________/unit =				
5	TOTAL BREEDING LIVESTOCK CAPITAL (sum Lines 2, 3, 4)				$
6	Machinery & equipment (present)			$	
7	Added machinery & equipment:[2]				
8			$	$	
9					
10					
11					
12					
13	TOTAL MACHINERY & EQUIPMENT CAPITAL (sum Lines 6, 8, 9, 10, 11, 12)				$
14	Buildings & facilities (present)			$	
15	Added buildings & facilities:[2]				
16			$	$	
17					
18					
19					
20	TOTAL BUILDING & FACILITIES CAPITAL (sum Lines 14, 16, 17, 18, 19)				$
21	Land & land improvements (present)[3] ________ac. x $________/acre =			$	
22	Added land & land improvements:[2]				
23			$		
24					
25	TOTAL LAND & LAND IMPROVEMENTS CAPITAL (sum Lines 21, 23, 24)				$
26	TOTAL FARM INVESTMENT CAPITAL (sum Lines 5, 13, 20, 25)				$

[1] Present system values for Lines 6 and 14 are depreciated values (such as those on depreciation schedule). For new machinery and equipment added in alternative system, average value equals approximately 1/2 of new cost. For new buildings, fences, and facilities added, average value equals approximately 3/4 of new cost. For non-depreciable items (such as land), average value equals new cost.

[2] Disinvestment may also be considered in alternative plan. Values of machinery, equipment, facilities, land, etc., not needed in alternative plan are entered as negative figures in Column 3.

[3] Does not include value of dwelling, farm buildings, fences, and facilities.

DIRECTIONS: FORM 3, FARM INVESTMENT CAPITAL

Use this form to estimate the farm investment capital for your present plan and for each alternative plan considered. Farm investment capital is defined as the average value of intermediate and long-term farm assets owned. Current farm assets (inventories of market livestock, feed, crops, etc.) are not included as farm investment capital.

Average value of breeding livestock units include: investment in the breeding animal (sow, cow, etc.) plus the share of sire and replacement animal per unit. Average value for machinery, equipment, buildings, land, etc., is explained in footnote 1.

Total values (Column 4) are transferred to Form 6 for further analysis.

FM 7535
Farm Mgt. Ext.
Univ. of Mo.

FORM 5
SUMMARY: LIVESTOCK SYSTEM

Present Plan____
Alternative No.____

			PER UNIT BUDGETS		PER UNIT FARM FEED REQUIREMENTS				BUDGET TOTALS		TOTAL FARM FEED REQUIREMENTS			
	Livestock unit	Total units	Income over var. costs	Hours direct labor	Corn equiv-alent	Silage tons	Hay tons	Pas-ture AUM's	Income over variable costs	Hours direct labor	Corn equiva-lent	Silage tons	Hay tons	Pasture AUM's
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
									2x3	2x4	2x5	2x6	2x7	2x8
1														
2														
3														
4														
5														
6														
7	Total farm feed requirements (add Cols. 11, 12, 13, and 14)								▨	▨				
8	Total farm feed available (Form 4, Cols. 9, 10, 11, and 12)								▨	▨				
9	Farm feed surplus (+) or shortage (-) (difference of Lines 7 and 8)								▨	▨				
10	Total Income Over Variable Costs (add Col. 9)									▨	▨	▨	▨	▨
11	TOTAL HOURS DIRECT LABOR (add Col. 10)								▨		▨	▨	▨	▨
12	Adjustment of Income Over Variable Costs for Value of Surplus Pasture:								▨	▨	▨	▨	▨	▨
13	If surplus pasture, multiply surplus _______ (Line 9, Col. 14) x $______/AUM =									▨	▨	▨	▨	▨
14	ADJUSTED TOTAL INCOME OVER VARIABLE COSTS (subtract Line 13 from Line 10)									▨	▨	▨	▨	▨

DIRECTIONS: FORM 5, LIVESTOCK SYSTEM

Use this form to calculate total income over variable costs, hours labor, and farm feed requirements for the livestock system of each plan considered.

Livestock and units are accounted for in Columns 1 and 2. Using livestock budget information (Columns 3, 4, 5, 6, 7, and 8) budget totals (Columns 9 and 10) and total farm feed required (Columns 11, 12, 13, and 14) are calculated. Note: interest paid on livestock operating capital is part of the variable cost per unit.

Total farm feed required is summed on Line 7. Total farm feed produced is entered from Form 3 on Line 8. The difference in production and requirements is entered on Line 9.

A procedure for adjusting the total income over variable costs is shown on this form. The value of any surplus pasture shown on Line 9 is subtracted from the total livestock income over variable cost.

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FORM 6
SUMMARY: CAPITAL, LABOR, INCOME, & RETURNS

Present Plan____
Alternative No.____

	Item	Details	Totals
	(1)	(2)	(3)
	FARM INVESTMENT CAPITAL:		
1	Breeding livestock (Form 3, Line 5)	$	
2	Machinery & equipment (Form 3, Line 13)		
3	Buildings & facilities (Form 3, Line 20)		
4	Land & improvements (Form 3, Line 25)		
5	AVERAGE FARM INVESTMENT CAPITAL (Form 3, Line 26)		$
	DIRECT LABOR REQUIRED:		
6	Crop labor hours (Form 4, Line 20, Col. 8)	hrs.	
7	Livestock labor hours (Form 5, Line 11)	hrs.	
8	TOTAL HOURS DIRECT LABOR (sum Lines 6, 7)		hrs.
	INCOME OVER VARIABLE COSTS:		
9	Crop income over variable costs (Form 4, L. 20, Col. 7)	$	
10	Livestock income over variable costs (Form 5, L. 14)		
11	TOTAL INCOME OVER VARIABLE COSTS (sum Lines 9 and 10)		$
	OTHER CASH COSTS & NET CASH INCOME:[1]		
12	Hired labor: _______no. men x $___________/year =	$	
13	Cash rent paid: _______acres rented x $_______/acre =		
14	Real estate & property taxes (est. 0.5% of Line 5)		
15	Building insurance & repairs (est. 3% of Line 3)		
16	Miscellaneous expense (est. 2% of Line 11)		
17	TOTAL OTHER CASH COSTS (sum Lines 12, 13, 14, 15, 16)		$
18	NET CASH FARM INCOME (Line 11 minus Line 17)		$
	DEPRECIATION:[1]		
19	Machinery & equipment (est. 20% of Line 2)	$	
20	Buildings & facilities (est. 10% of Line 3)		
21	TOTAL DEPRECIATION (Line 19 + Line 20)		$
	RETURNS:		
22	Farm profit[2] (Line 18 minus Line 21)		$
23	Family labor & mgt. charge (est.) _____hrs. x $_____/hr.=	$	
24	Return to farm investment capital (Line 22 minus Line 23)		$
25	Rate earned on farm investment capital (L. 24 ÷ L. 5)		%
26	Interest on farm investment capital (____% of Line 5)	$	
27	Return to family labor & management (Line 22 minus L. 26)		$

---

[1] Percentage estimates are only guidelines.

[2] Estimated return to family labor, farm investment capital, and management.

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DIRECTIONS: FORM 6, CAPITAL, LABOR, INCOME, & RETURNS

Use this form to determine the expected profitability of each long-run plan being considered.

1. Farm investment capital, labor required, and income over variable costs (Lines 1-11) are based on information estimated on Forms 3, 4, and 5. Total direct labor hours required (Line 8) may be compared with available hours of labor. Total income over variable costs (Line 11) includes interest paid on operating capital.

2. Other cash costs (not accounted for in the budgets) are estimated on Lines 12-16 and totaled on Line 17.

3. Net cash farm income (Line 18) does not include interest paid on investment capital or other cash costs (Line 17). Depreciation (Line 21) is estimated from the farm investment capital totals above.

4. Farm profit (Line 22) is the first returns measure calculated--net cash farm income minus depreciation. Subtracting a charge for labor and management (Line 23), the return to farm investment capital is estimated on Line 24. (Note: this is a return to investment capital, not total capital.)

5. Rate earned on farm investment capital (Line 25) and return to family labor and management (Line 27) are other profit measures calculated on Form 6.

6. Labor Balance:

		Total hrs.	
Labor available:	Operator	______	
	Family members	______	
	Total		______
Labor required:	Direct labor (L. 8)	______	
	Misc. labor	______	
	Total		______
Balance:	Surplus		______
	Shortage to hire (L. 12) ..		______

LRPLAN

(LONG RUN PLANNING)

Objective

The purpose of this program is to help farmers select more profitable long-run farm plans. The Long Run Planning Program compares from 1 to 4 long-run plans to the present plan. The first plan is considered the PRESENT or base plan and other plans are modifications or changes from this plan.

The plans are projected financial results for the average of the next five years. Plans are compared on the basis of profitability and debt servicing ability.

Credits

This program was developed by Herman Workman, Extension Economist at the University of Missouri-Columbia. It was modified and converted from batch to terminal operation by Gerald Ehlmann, Programmer/Analyst Department of Agricultural Economics, University of Missouri-Columbia.

LONG RUN PLANNING PROCEDURE

1. Plan 1 is the PRESENT or base plan. It provides a benchmark farm financial situation for comparing 5-year alternative plans. All alternative plans are compared to the first plan.

2. Complete the general information (Section I). The description of plans as entered on lines 3 through 7 will be printed as part of the headings on the output. The number of plans in this run will be determined by the number of plans for which there is data in the budgets.

3. In Section II enter a "normal beginning-of-the-year balance" of assets and liabilities for the present situation. Any major change in investments for alternative plans will automatically adjust the present balance sheet.

4. Section III is for entering undistributed costs. Cash Rent and hired labor expenses are entered for each plan considered. Other costs are entered only for the present situation. These expenses will be adjusted according to the information entered in Section V for the alternative plans.

5. Develop the proposed capital changes for each alternative plan using Section V. Remember that proposed capital changes should be consistent with proposed crop and livestock changes for the alternative plans.

6. Develop the cropping and livestock plans for each plan using Sections VI and VII. Remember, that proposed livestock changes should be consistent with proposed crop changes as well as capital investment changes for each plan. Any non-farm income that is important to the comparison is entered in Section VIII.

7. Data will NOT carry forward from plan to plan in this program as it does in the FTRAN program.

8. Following are some pointers for entering data into the computer.

    a. The LRPLAN program requires that the data be stored in a computer data file before running the program. Use the FILE program to do this.

    b. Be sure to start each line of data with the correct line number.

    c. If all blanks on a line are zero the line may be omitted.

    d. Any blank within a line must be filled with a zero.

Missouri Cooperative Extension Service University of Missouri & Lincoln University

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FBMA III

REMOTE COMPUTER PLANNING

FARM MANAGEMENT Mumford Hall Columbia, MO 65211 Ph: (314) 882-8234

FM-8047 COMPUTER SYSTEM: UMC

LRPLAN*

(LONG RANGE PLANNING)

I. GENERAL INFORMATION Data File Name ____________

A. 1. Line # .... 1 ,
   2. Name .... ________________________________

B. 1. Line # .... 2 ,
   2. Address .... ________________________________

C. Description of Plans (number of plans will be determined by data in budgets)

	Line	Description
1. Plan 1	3 ,	
2. Plan 2	4 ,	
3. Plan 3	5 ,	
4. Plan 4	6 ,	
5. Plan 5	7 ,	

II. BALANCE SHEET INFORMATION

A. Farm assets (dollars)

1. Line #......... 8 ,
2. Cash on hand .... __________,
3. Grain, feed, etc. .... __________,
4. Market livestock .... __________,
5. Breeding livestock .... __________,
6. Machinery and equipment .... __________,
7. Buildings and improvements .... __________,
8. Land .... __________

---

*The data for this program must be stored in a computer data file before running the program. To store the data in a file, use the computer program called FILE. Be sure to start each line of data with the correct line number.

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(9/80)
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B. Non-farm assets (dollars)

1. Line # .... 9 ,
2. Current non-farm assets.............. __________,
3. Intermediate non-farm assets .... __________,
4. Long-term non-farm assets .... __________.

C. Liabilities	Line #	Amount	Interest Rate	Annual Principal Payment
Current (due 1 yr.)	101 ,			
Intermediate (due 1-8 yrs.)........	111 ,			
Long-term	121 ,			

III. UNDISTRIBUTED COSTS

	Line #	PLAN 1	PLAN 2	PLAN 3	PLAN 4	PLAN 5
A. Cash Rent	201 ,					
B. Hired labor	202 ,					
C. Other costs*	203 ,					

1. Building repairs .... __________,
2. Property tax .... __________,
3. Insurance .... __________,
4. Miscellaneous .... __________,
5. Depreciation-machinery .... __________,
6. Depreciation-buildings .... __________

---

*Enter data for first plan only, other plans are calculated.

IV. MISCELLANEOUS INFORMATION

A. Line # .... 210 ,
B. Number of families for income tax filing ...... __________,
C. Total number of exemptions for income tax filing .... __________,
D. Value of operator's labor .... __________,
E. Estimated family living expense .... __________,
F. Minimum cash balance to maintain .... __________

(3/83)

V. CHANGES IN INVESTMENTS: Additions or deletions of capital assets--cash, feed, etc., livestock machinery, buildings, land and non-farm business.

Investment Changes (This Column for referrel only)	Line #	Code for plan investment is to be made[1]	Investment Code[2]	Value (for sales & trade-ins use a (-) value	Yrs. of life depr.	Prop. tax rate/$100 Assessed Value[3]	Ins.rate /$100 Original Value	Bldg. repair, %/$100 Original Value	New Loan Information		
									Cur. 1 Int. 2 L.T. 3 Code 4&5	Interest Rate (%)	Years to Repay
	301										
	302										
	303										
	304										
	305										
	306										
	307										
	308										
	309										
	310										
	311										
	312										
	313										
	314										
	315										

[1] Plan Codes: First = 1; Second = 2, etc.

[2] Codes for investment changes:

Cash	1	Bldgs. & facilities	6
Feed Grains	2	Land	7
Mkt. Livestock	3	Cur. non-farm assets	8
Breeding L.S.	4	Int. non-farm assets	9
Mach. & Equip.	5	L.T. non-farm assets	10

[3] Assumes assessed at one-third value shown.

[4] Current loans (1) are assumed to be "rolled" each year & should not have any "years to repay". Intermediate loans (2) are from 1-9 years; long-term loans (3) are for 10 yrs. or more.

Code 4 is used to increase capital assets without incurring liabilities (Ex.: value of heifers raised). Code 5 is used to adjust gross sales due to accumulation or reduction of inventories (market livestock, crops for sale, feed, etc.). If codes 4 or 5 are used, leave "Interest Rate" & "Years to Repay" blank.

VI. LIVESTOCK BUDGETS

Kind of Livestock (DO NOT enter into computer) ______________________________

A. General information

1. Line # 3010,
2. Livestock code* .... ____________,
3. Hours direct labor per unit below .... ____________.

	Line #	PLAN 1	PLAN 2	PLAN 3	PLAN 4	PLAN 5
B. Number of units..........	3011 ,	________,	________,	________,	________,	________
C. Market animals						
1. Cwt.	3012 ,	________,	________,	________,	________,	________
2. Price per cwt.	3013 ,	________,	________,	________,	________,	________
D. Breeding animals						
1. Cwt.	3014 ,	________,	________,	________,	________,	________
2. Price per cwt.	3015 ,	________,	________,	________,	________,	________
E. Animal products						
1. Cwt.	3016 ,	________,	________,	________,	________,	________
2. Price per cwt.	3017 ,	________,	________,	________,	________,	________
F. Variable cost per unit**..	3018 ,	________,	________,	________,	________,	________
G. Feed requirements						
1. Corn (bu.)	3019 ,	________,	________,	________,	________,	________
2. Silage (tons)	3020 ,	________,	________,	________,	________,	________
3. Hay (tons)	3021 ,	________,	________,	________,	________,	________
4. Pasture (AUMs)	3022 ,	________,	________,	________,	________,	________

---

*Livestock codes:

Litters or sows ..	4 - 7	Fed cattle	20 - 22
Other hogs	8	Fed steers	23
Feeder pigs	9	Fed heifers	24
Dairy cows	10 - 11	Sheep	25 - 29
Other dairy	12 - 14	Poultry	30 - 34
Beef cows	15 - 16	Other livestock ..	35 - 38
Other beef	17 - 19		

**Do not include:
Interest costs
Feeds listed under "Item G"
Undistributed costs in Section III.

Kind of Livestock (DO NOT enter into computer) ____________________

A. General Information

1. Line # .... 3110 ,

2. Livestock Code* .... __________ ,

3. Hours Direct Labor per Unit below .... __________ .

	Line #	PLAN 1	PLAN 2	PLAN 3	PLAN 4	PLAN 5
B. Number of units	3111 ,	______ ,	______ ,	______ ,	______ ,	______
C. Market animals						
1. Cwt.	3112 ,	______ ,	______ ,	______ ,	______ ,	______
2. Price per cwt.	3113 ,	______ ,	______ ,	______ ,	______ ,	______
D. Breeding animals						
1. Cwt.	3114 ,	______ ,	______ ,	______ ,	______ ,	______
2. Price per cwt.	3115 ,	______ ,	______ ,	______ ,	______ ,	______
E. Animal products						
1. Cwt.	3116 ,	______ ,	______ ,	______ ,	______ ,	______
2. Price per cwt.	3117 ,	______ ,	______ ,	______ ,	______ ,	______
F. Variable cost per unit**.	3118 ,	______ ,	______ ,	______ ,	______ ,	______
G. Feed requirements						
1. Corn (bu.)	3119 ,	______ ,	______ ,	______ ,	______ ,	______
2. Silage (tons)	3120 ,	______ ,	______ ,	______ ,	______ ,	______
3. Hay (tons)	3121 ,	______ ,	______ ,	______ ,	______ ,	______
4. Pasture (AUMs)	3122 ,	______ ,	______ ,	______ ,	______ ,	______

---

*Livestock codes:

Litters or sows ..	4 - 7	Fed cattle	20 - 22
Other hogs	8	Fed steers........	23
Feeder pigs	9	Fed heifers	24
Dairy cows	10 - 11	Sheep	25 - 29
Other dairy	12 - 14	Poultry	30 - 34
Beef cows	15 - 16	Other livestock ..	35 - 38
Other beef	17 - 19		

**Do not include: Interest costs
Feeds listed under "Item G"
Undistributed costs in Section III.

([illegible])

Kind of Livestock (DO NOT enter into computer ______________________________

A. General Information

1. Line # .... 3210 ,

2. Livestock Code* .... __________,

3. Hours Direct Labor per Unit below .... __________.

	Line #	PLAN 1	PLAN 2	PLAN 3	PLAN 4	PLAN 5
B. Number of units	3211					
C. Market animals						
1. Cwt.	3212					
2. Price per cwt.	3213					
D. Breeding animals						
1. Cwt.	3214					
2. Price per cwt.	3215					
E. Animal products						
1. Cwt.	3216					
2. Price per cwt.	3217					
F. Variable cost per unit**.	3218					
G. Feed requirements						
1. Corn (bu.)	3219					
2. Silage (tons)	3220					
3. Hay (tons)	3221					
4. Pasture (AUMs)	3222					

---

*Livestock codes:

Litters or sows ..	4 - 7	Fed cattle .... 20 - 22
Other hogs	8	Fed steers 23
Feeder pigs	9	Fed heifers 24
Dairy cows	10 - 11	Sheep .... 25 - 29
Other dairy	12 - 14	Poultry .... 30 - 34
Beef cows	15 - 16	Other livestock .. 35 - 38
Other beef	17 - 19	

**Do not include: Interest costs
Feeds listed under "Item G"
Undistributed costs in Section III.

Kind of Livestock (DO NOT enter into computer) ______________________________

A. General Information

1. Line # .... 3310 ,

2. Livestock Code* .... __________ ,

3. Hours Direct Labor per Unit below .... __________ .

	Line #	PLAN 1	PLAN 2	PLAN 3	PLAN 4	PLAN 5
B. Number of units	3311					
C. Market animals						
1. Cwt.	3312					
2. Price per cwt.	3313					
D. Breeding Animals						
1. Cwt.	3314					
2. Price per cwt.	3315					
E. Animal products						
1. Cwt.	3316					
2. Price per cwt.	3317					
F. Variable cost per unit**.	3318					
G. Feed requirements						
1. Corn (bu.)	3319					
2. Silage (tons)	3320					
3. Hay (tons)	3321					
4. Pasture (AUMs)	3322					

---

*Livestock codes:

Litters or sows ..	4 - 7	Fed cattle	20 - 22
Other hogs	8	Fed steers	23
Feeder pigs	9	Fed heifers	24
Dairy cows	10 - 11	Sheep	25 - 29
Other dairy	12 - 14	Poultry	30 - 34
Beef cows	15 - 16	Other Livestock ..	35 - 38
Other beef	17 - 19		

**Do not include: Interest costs
Feeds listed under "Item G"
Undistributed costs in Section III.

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Kind of Livestock (DO NOT enter into computer) ______________

A. General Information

1. Line # .... 3410 ,

2. Livestock Code* .... ____________,

3. Hours Direct Labor per Unit below .... ____________.

	Line #	PLAN 1	PLAN 2	PLAN 3	PLAN 4	PLAN 5
B. Number of units	3411 ,	,	,	,	,	
C. Market animals						
1. Cwt.	3412 ,	,	,	,	,	
2. Price per cwt.	3413 ,	,	,	,	,	
D. Breeding animals						
1. Cwt.	3414 ,	,	,	,	,	
2. Price per cwt.	3415 ,	,	,	,	,	
E. Animal products						
1. Cwt.	3416 ,	,	,	,	,	
2. Price per cwt.	3417 ,	,	,	,	,	
F. Variable cost per unit**.	3418 ,	,	,	,	,	
G. Feed requirements						
1. Corn (bu.)	3419 ,	,	,	,	,	
2. Silage (tons)	3420 ,	,	,	,	,	
3. Hay (tons)	3421 ,	,	,	,	,	
4. Pasture (AUMs)	3422 ,	,	,	,	,	

---

*Livestock codes:

Litters or sows ...	4 - 7	Fed cattle	20 - 22
Other hogs	8	Fed steers	23
Feeder pigs	9	Fed heifers	24
Dairy cows	10 - 11	Sheep	25 - 29
Other dairy	12 - 14	Poultry	30 - 34
Beef cows	15 - 16	Other livestock	35 - 38
Other beef	17 - 19		

**Do not include:
Interest costs
Feeds listed under "Item G"
Undistributed costs in Section III

NOTE: *If additional livestock budgets are required, use additional forms, but change the second digit of the line number to the next highest number for each added budget. For Example: the line number in the next budget should start with 3510, 3511, etc., and the following page with 3610, 3611, etc.*

VII. CROP BUDGETS

Kind of Crop (DO NOT enter into computer) ____________________

A. General Information

1. Line # .... 5010 ,
2. Crop Code* .... ________,
3. Hours Labor per Crop Acre .... ________.

	Line #	PLAN 1	PLAN 2	PLAN 3	PLAN 4	PLAN 5
B. Acres	5011					
C. Yield per acre	5012					
D. Price per unit	5013					
E. Variable cost/acre**..	5014					

Kind of Crop (DO NOT enter into computer) ____________________

A. General Information

1. Line # .... 5110 ,
2. Crop Code* .... ________,
3. Hours Labor per Crop Acre .... ________.

	Line #	PLAN 1	PLAN 2	PLAN 3	PLAN 4	PLAN 5
B. Acres	5111					
C. Yield per acre	5112					
D. Price per unit	5113					
E. Variable cost/acre**.	5114					

---

*Crop Codes:

Corn	42	Cotton	68
Milo	49	Silage	48
Wheat	51	Pasture	70
Soybeans	53	Hay	61
Oats, rye, barley .	56	Other cash crops ..	66

**Do not include:

Interest costs, or
Undistributed costs listed in Section III.

CROP BUDGETS (Cont.)

Kind of Crop (DO NOT enter into computer) ____________________

A. General Information

1. Line # .... 5210 ,
2. Crop Code* .... ________,
3. Hours Labor per Crop Acre .... ________.

	Line #	PLAN 1	PLAN 2	PLAN 3	PLAN 4	PLAN 5
B. Acres	5211					
C. Yield per acre	5212					
D. Price per unit	5213					
E. Variable cost/acre**..	5214					

Kind of Crop (DO NOT enter into computer) ____________________

A. General Information

1. Line # .... 5310 ,
2. Crop Code* .... ________,
3. Hours Labor per Crop Acre .... ________.

	Line #	PLAN 1	PLAN 2	PLAN 3	PLAN 4	PLAN 5
B. Acres	5311					
C. Yield per acre	5312					
D. Price per unit	5313					
E. Variable cost/acre**..	5314					

---

*Crop Codes:

Corn	42	Cotton	68
Milo	49	Silage	48
Wheat	51	Pasture	70
Soybeans	53	Hay	61
Oats, rye, barley	56	Other cash crops	66

**Do not include: Interest costs, or
Undistributed costs listed in Section III.

CROP BUDGETS (Con't.)

Kind of Crop (DO NOT enter into computer) ______________________________

A. General Information

1. Line # .... 5410 ,
2. Crop Code* .... __________ ,
3. Hours Labor per Crop Acre .... __________ .

	Line #	PLAN 1	PLAN 2	PLAN 3	PLAN 4	PLAN 5
B. Acres	5411 ,	,	,	,	,	
C. Yield per acre	5412 ,	,	,	,	,	
D. Price per unit	5413 ,	,	,	,	,	
E. Variable cost/acre**..	5414 ,	,	,	,	,	

Kind of Crop (DO NOT enter into computer) ______________________________

A. General Information

1. Line # .... 5510 ,
2. Crop Code* .... __________ ,
3. Hours Labor per Crop Acre .... __________ .

	Line #	PLAN 1	PLAN 2	PLAN 3	PLAN 4	PLAN 5
B. Acres	5511 ,	,	,	,	,	
C. Yield per acre	5512 ,	,	,	,	,	
D. Price per unit	5513 ,	,	,	,	,	
E. Variable cost/acre**..	5514 ,	,	,	,	,	

---

*Crop Codes:

Corn	42	Cotton	68
Milo	49	Silage	48
Wheat	51	Pasture	70
Soybeans	53	Hay	61
Oats, rye, barley ..	56	Other cash crops ..	66

**Do not include: Interest costs, or
Undistributed costs listed in Section III.

(9/80)

CROP BUDGETS (Con't.)

Kind of Crop (DO NOT enter into computer) ______________________

A. General Information

1. Line # .... 5610 ,

2. Crop Code* .... ________,

3. Hours Labor per Crop Acre .... ________.

	Line #	PLAN 1	PLAN 2	PLAN 3	PLAN 4	PLAN 5
B. Acres	5611					
C. Yield per acre	5612					
D. Price per unit	5613					
E. Variable cost/acre**..	5614					

Kind of Crop (DO NOT enter into computer) ______________________

A. General Information

1. Line # .... 5710 ,

2. Crop Code* .... ________,

3. Hours Labor per Crop Acre .... ________.

	Line #	PLAN 1	PLAN 2	PLAN 3	PLAN 4	PLAN 5
B. Acres	5711					
C. Yield per acre	5712					
D. Price per unit	5713					
E. Variable cost/acre**..	5714					

---

* Crop Codes:

Corn	42	Cotton	68
Milo	49	Silage	48
Wheat	51	Pasture	70
Soybeans	53	Hay	61
Oats, rye, barley ..	56	Other cash crops ..	66

**Do not include: Interest costs, or
Undistributed costs listed in Section III.

CROP BUDGETS (Con't.)

Kind of Crop (DO NOT enter into computer) ____________________

A. General Information

1. Line #............ 5810

2. Crop Code* .... ________,

3. Hours Labor per Crop Acre .... ________.

	Line #	PLAN 1	PLAN 2	PLAN 3	PLAN 4	PLAN 5
B. Acres	5811					
C. Yield per acre	5812					
D. Price per unit	5813					
E. Variable cost/acre**.	5814					

Kind of Crop (DO NOT enter into computer) ____________________

A. General Information

1. Line # 5910,

2. Crop Code*................. ________,

3. Hours Labor per Crop Acre .... ________.

	Line #	PLAN 1	PLAN 2	PLAN 3	PLAN 4	PLAN 5
B. Acres	5911					
C. Yield per acre	5912					
D. Price per unit	5913					
E. Variable cost/acre**..	5914					

---

*Crop Codes:

Corn	42	Cotton	68
Milo	49	Silage	48
Wheat	51	Pasture	70
Soybeans	53	Hay	61
Oats, rye, barley	56	Other cash crops	66

**Do not include: Interest costs, or
Undistributed costs listed in Section III.

NOTE: *If additional crop budgets are needed, use additional forms, but increase the second digit by one for each additional budget. For example, the line number in the next budget will be 6010, 6011, etc., and the next will be 6110, 6111, etc.*

(9/80)

VIII. NON FARM BUSINESS INFORMATION

	Line #	PLAN 1	PLAN 2	PLAN 3	PLAN 4	PLAN 5
A. Investment NO. 1						
1. No. of units	8011					
2. Net income/unit ...	8012					
3. Labor hrs./unit ...	8013					
B. Investment NO. 2						
1. No. of units	8111					
2. Net income/unit ...	8112					
3. Labor hrs./unit ...	8113					
C. Investment NO. 3						
1. No. of units	8211					
2. Net income/unit ...	8212					
3. Labor hrs./unit ...	8213					

FARM BUSINESS MANAGEMENT ANALYSIS

Unit III: Adjusting the Farm Business to Increase Profit

Lesson 7: Planning the Farm Marketing Program

A. Review

The previous lesson, Determing the Most Profitable Livestock System for My Farm, should be reviewed. List all conclusions you may have reached at your last meeting. Possible conclusions may have included:

1. Each enterprise should be separately evaluated on its own merits. Each must provide net income.
2. Weak enterprises may need to be re-considered.
3. Each resource available - land, labor, capital, and management - should be utilized as fully as possible. Farm enterprises must fit together to bring this about for maximum profit.
4.
5.

B. Objective

To understand the various marketing alternatives open to farmers and when we might want to take advantage of each one.

C. Motivation

1. Ask the enrollees to look at their record analysis from the previous year and determine how their prices received for the various commodities they produced compared with the average farm. They will find this information on the Farm Business Analysis Form (blue) and Livestock Analysis Form (green). Ask them if their prices were higher or lower. Ask them why they think they received better prices than average in some instances and lower prices in others. List their replies on the chalkboard. Very likely the responses will include things like:

   - quality differential (mine was higher or lower quality than average)
   - hit a good or poor time to sell
   - had it contracted and the cash price was better or worse
   - commodity was not in correct condition to sell
   - had to sell at a poor time to get needed cash

   After these have been listed on the board, point out that all of these things have to do with marketing. All too often we have considered marketing as simply selling our products. "Marketing" and "Selling" are not the same. Just as "marketing", to an agri-business man, includes advertising, processing, blending, labor, transportation, financing, etc., it also includes the same things for farmers. We need to expand our concept of marketing in order to be able to do a better job.

2. Give the enrollees a copy of HO-72, Sample Quiz-Marketing, and let them have a few minutes to jot down their answers. Discuss the quiz questions and use them as a motivator for the lesson.

D. Key Points

Key points which will be accomplished are as follows:

1. **How does our marketing system function?**
2. **What are my alternatives in marketing grain and livestock?**
3. **When and how should I use forward pricing?**
4. **What are the mechanics of hedging on the futures market?**
5. **What are good sources of marketing information?**

E. Introduction of Information

Begin by pointing out that the first part of the lesson will deal with how our market system is put together and will then explore ways to improve our marketing.

1. **How does our marketing system function?**

   a. Show TM-42, Marketing Function, and discuss with the enrollees each function in the marketing process and how it relates to farmers. Use the following guidelines in your discussion.

      1) Assembly - refers to assembly of raw commodities at the marketplace where they are weighed, graded, blended, etc.

      2) Transportation - is an increasingly important and costly part of the marketing process. Includes transportation of raw commodity, transportation to and from processing plants, to and from wholesale outlets to retail outlets.

      3) Processing - makes up a major portion of the food bill for many products like canned goods, bread, etc.

      4) Packaging - increasingly important as we go to more highly processed foods

      5) Storage - storage becomes a cost for every stop along the marketing chain from farmer to retailer. Interest is a major part of this cost.

      6) Pricing - prices are established that will meter the product to society in an orderly and efficient manner.

      7) Financing - interest costs have made financing an important factor at each step in the chain. Each participant in the chain is forced to move the product as quickly as possible as interest charges increase.

8) Promotion - in a world of easy communication and media, promotion of product and product image is necessary.

9) Retailing - retailers have the job of pricing and selling so that all items demanded are available at a price consumers are willing to pay (and leave them a profit).

b. Show TM-43, What the Food Dollar Pays For, and point out the fact that the farmer's share of dollars spent for food products varies tremendously. A farmer receives a relatively small share of a dollars worth of bread or canned goods, but receives a much larger share of dollars spent on raw meat, milk, eggs, etc., since they are subjected to less processing.

c. Show TM-44, Farm-Food Marketing Bill and Consumer Food Expenditures, and point out that the marketing bill has steadily grown at an increasing rate. While the farm value of food has risen also, it still accounts for less than one-third of the total food bill.

d. Show TM-45, Components of Bill for Marketing Farm Foods, 1974, and discuss the make-up of the total marketing bill. It is very significant to note that the cost of labor constitutes over half of the marketing bill. Since, as we saw on the previous transparency, the marketing bill accounts for over two-thirds of the total food bill, labor constitutes over 1/3 of the total food bill, making it an extremely important factor in the cost of food.

e. Show TM-46, Function of Price, and discuss with the enrollees the function of price in our marketing system. The idea to get across here is that prices respond to changes in supply and demand so that we never "use up" all of a commodity but spread it out until the next harvest with varying prices. Hence, a large supply implies lower prices and a short supply pushes prices up as long as demand remains fairly constant.

It might be important to note that supply of grain and livestock are different in light of the fact that we harvest a new crop of soybeans, corn, or wheat only once per year and that supply has to be spread over the entire year while we take off a new crop of market hogs and slaughter cattle daily.

f. While showing TM-47, Factors Affecting Supply and Factors Affecting Demand, discuss each factor with the enrollees. Use the following guidelines in your discussion:

1) Factors Affecting Supply

a) Technology Changes - refers to things like improved fertilizers, new and better herbicides, improved hybrids, advances in medication and feed preparation, improvements through breeding, and other advances in production technology.

b) Price of Product and Competing Products - over the long run, high product prices will tend to increase supply, while relatively cheaper prices of competing products will hold down price and consequently supply.

c) Cost of Production - again, over the long run, the relationship between cost of production and returns has a great effect on supply, even though commodities like beef cattle have proven that it is not the only factor involved.

d) Seasons of year - supplies vary according to seasons of the year because of production cycles of livestock and crops. e.g., hogs are generally in shortest supply during February and July bacause farmers don't like to farrow sows in August and January, etc.

2) Factors Affecting Demand

a) Seasonal Preferences - people demand turkey at Thanksgiving, ham at Christmas, Lamb at Passover, etc.

b) Personal Preferences - people may have preferences for beef over chicken, etc. we try to affect personal preference by processing techniques and promotions.

c) Disposable Income - the higher the disposable income, the higher the demand for certain products.

d) Prices of Substitute or Competing Products - if corn price is low, it pulls the price of grain sorghum down with it, the price of poultry affects the price of beef, etc.

e) Advertising and Promotion - promoting products through media and special projects. e.g. pork producers check-off funds used to promote pork, packer grades on beef, etc.

2. **What are my alternatives in marketing grain and livestock?**

a. While showing TM-48, discuss the alternatives a farmer has in marketing grain. Use the following guidelines as a basis for your discussion.

1) Sell Cash at Harvest

Some farmers may elect to sell grain on the cash market at harvest, but experience has shown that in about 7 out of 10 years, the time period surrounding harvest is a poor time to sell because of the glut that hits the market in a short time period. Transportation gets tight, bins get full and price suffers. Some say that in years in which it appears that there might be a short crop, the harvest price may be the best of the year if the markets over-react.

2) Store Cash at Harvest

a) Sell at higher price later

This technique assumes that grain prices will get better after the harvest glut is over as is historically the case, so the farmer stores the grain and then sells it at a time when he/she thinks the price is good.

There are several considerations that should be taken into account when storing grain. A farmer needs to figure and know the cost of drying and storing grains in order to determine how much price gain will be needed to cover these costs. Remind the enrollees that interest is one of the major costs of storing grain.

1) Distribute copies of HO-73, Costs of Storage, HO-74,Grain Drying Problem, and HO-75, Percentage Shrinkage When Grain is Dried, to each enrollee, and if time permits, work an example on both worksheets so that they are comfortable with both concepts.

b) Use Averaging

Some farmers like to store their grain at harvest and then sell it a little at a time throughout the rest of the year. Some sell on a set schedule or pattern, while others attempt to sell on good markets.

Averaging will never get the "best" price, but neither will it result in the worst.

3) Forward Contracting

Forward contracting can be done in several different ways as summarized below:

a) Fixed Price Contract - a farmer simply agrees to sell grain at some point in the future at a specified price. Distribute copies of HO-76, Forward Contract Example, to enrollees and discuss the various stipulations that should be made in any forward contract. Also, discuss local policies concerning grain contracting.

b) Deferred Price Contract - a farmer stores and contracts grain with an elevator, but at a price to be determined at a later date. This can be dangerous in that the elevator holds title to the grain and if a bankruptcy occurs, the farmer has given up title to the grain and could lose it.

c) Pooled Sales Contract - the concept of pooled sales contracts is that producers can cooperatively pool their grains together to get the advantage of scale and do a better job of marketing through an "expert" marketing organization that markets the grain for them. As you would guess, this sometimes proves very successful, and sometimes very disappointing.

4) Hedging With the Futures Market

Hedging with the futures market provides a variety of alternatives that offer flexibility.

a) Hedge During the Growing Season - the effect of hedging on the futures market is to protect a price that a farmer thinks is reasonable. Farmers sometimes hedge about 1/3 of the crop at planting, another 1/3 when the crop is up and growing, and the last 1/3 when the crop is harvested.

b) Sell Cash at Harvest - Buy a Distant Contract - some farmers sell their grain for cash at harvest and buy a distant futures contract, figuring that the futures market will rise after harvest as the cash market usually does, and the contract can be sold for profit at a later date. The logic here is that instead of speculating on the cash market you are speculating on the futures market and you don't have to mess with storage. The fallacy of this system is that the futures market does not necessarily slump as much as the cash market during harvest (creating a wide basis, and the respective gain on the futures market following harvest may not be as much as the gain in the local cash market.

c) Protect Storage Profit-Hedge the Basis - the idea here is to take advantage of a wide basis (difference between local cash and futures) at harvest by storing the grain and selling a futures contract for several months after harvest. The basis historically narrows quite a bit by the time the delivery month arrives, thus the farmer gets the advantage of the narrower basis when the cash grain is sold and the contract is brought back.

b. While showing TM-49, Livestock Marketing, discuss the various alternatives available to farmers in marketing livestock. Use the following guidelines in your discussion.

1) Sell Cash

a) Local Markets - there are approximately 80 local markets or livestock buying stations in Missouri, primarily buying hogs.

b) Auctions - there are over 100 local auctions and about 42 cooperative auctions in Missouri. All classes of livestock are moved through auctions but they are a particularly important means of marketing feeder cattle, feeder pigs, and sheep.

c) Packers - there are a number of packer buyers in Missouri. The percentage of livestock sold directly to packers has increased greatly in the past 10 years. Many packers buy slaughter cattle and hogs on a carcass merit or grade and yield basis in addition to live weight and grade buying. There may be advantages for some producers in selling grade and yield if they produce exceptional quality animals or off-type livestock that does not fit the standard weight and grade classes.

d) Terminals - there are still 5 terminal markets in Missouri, but the numbers being sold through terminals has decreased significantly in recent years. They are still an important marketplace in terms of setting price, numbers, and weight patterns in the livestock industry.

e) Dealers - there are over 200 registered livestock dealers in Missouri. Many are order buyers for feeder cattle and feeder pigs that will be shipped to feedlots out of state.

2) Contract Production

a) Feeder Livestock Marketing Program - there are several feeder livestock marketing programs in which the producer contracts his production in a planned marketing system in hopes of getting a superior market because of controlled production techniques that are designed to insure quality. e.g. the MFA Tel-O-Auction, Blue tag feeder cattle program, etc.

b) Contract Growing - in contrast to contracting for a specified market price, contract growing refers to growing animals for a production payment on each pound produced or each hundred-weight produced, etc. This is most common in the poultry industry. Most contract growing agreements include some incentives to do a good job. This takes away much risk but also reduces the opportunity for high profit.

3) Forward Contracting - in forward contracting livestock, a farmer simply agrees to sell a specified weight and grade of livestock at a specified time for a set price. The price is generally tied to the futures price in the delivery month. Forward contracts are becoming increasingly popular and are more and more flexible so that producers of all sizes can be involved. Distribute copies of HO-77, Sample Contract for Sale of Hogs, to enrollees and discuss experiences any of them have had with forward contracting of livestock.

4) Hedging on the Futures Market - as with grain, hedging livestock on the futures market assures a farmer of a price at some point in the future. The advantage of hedging over forward contracting is that it offers more flexibility for the producer. In addition, it might be able to obtain a better price if you can do a superior job of completing the hedge.

3. When and how should I use forward pricing?

While showing TM-50, Should I Forward Price, discuss the factors that should be considered in forward pricing. Also discuss the steps in determining the price objective to use in forward contracting or hedging. Point out that there are basically two main factors in deciding whether or not to forward price; 1) How much risk am I willing to assume and, 2) Can I meet my price objective? Use the following guides in your discussion.

a. How much risk do I want to assume?

Two types of people generally want to minimize risk - those who are finanicially secure and don't want to risk their success and those who are struggling to get going and stay on their feet. Forward pricing gives many producers the confidence to increase production at times when there is a good profit margin available.

b. What is my price objective?

A producer needs to consider 3 things when determing a price objective; cost of production, market fundamentals, and charts.

1) Cost of Production

Knowing cost of production is an absolute must for someone considering forward pricing. There is no substitute for an accurate enterprise analysis on one's own farm so that accurate figures can be used in budgeting. A farmer needs to know his projected cost of production on grains and livestock before they are sown or raised or purchased so that when opportunities arise for locking in a good profit, a farmer knows where he stands in terms of production cost.

2) Fundamentals

Market fundamentals refer to the action of supply and demand in the market place. When considering forward pricing, look at market fundamentals and what they are telling you about the price. Fundamental reports are distributed regularly on all commodities by the government and other private agencies. Commentaries and predictions are offered by market experts and brokerage houses, etc. Point out to the enrollees that even though sometimes the market fundamentals predict a higher or lower price than the futures price for the time period in question, the futures price is a concensus price of people that are laying money on the table and they are watching the same fundamentals you are.

3) Charts

Market charts can help us to make decisions on a short term basis. Charting has two basic functions for producers: 1) it forces us to keep up with the markets on a day to day basis, and 2) they help us to predict and interpret market moves.

After setting a price objective, a producer can then choose options in protecting price by forward contracting or hedging.

4. What are the mechanics of hedging on the futures market?

Use the following guidelines and activities in discussing the mechanics of hedging on the futures market.

a. Hedging Terms and Definitions - Distribute copies of HO-78, Hedging Terms and Definitions to the enrollees and discuss each one using examples to solidify them.

b. Remind the enrollees that the futures market is simply made up of people buying and selling commodities for a future delivery date. Only 2-3% of contracts are actually delivered. Most contracts are completed by a roundturn buy-back or sell-back.

It is also important to remember that speculators think in terms of buying low and selling high or selling high and buying low, but a hedger is only interested in protecting a price.

c. Basis - an all important concept in using the futures market is the concept of basis. A true hedger sells cash commodity on the same day as he buys back the futures contract. It is to his advantage to complete these transactions on a day when basis is as narrow as possible. The futures price generally runs higher than the local cash price, but it is not at all unusual for the cash price to jump above futures because of high local demand! In this situation we have what we call an inverted basis, which is desirable for a hedger who is completing a transaction.

Distribute copies of HO-79, Basis, and discuss these basis histories or various commodities with the enrollees. Have the enrollees figure the basis between their local market and the markets shown here. Note that a negative or minus sign infers an inverted basis. Caution enrollees that this is a basis history and is an indication only of what a typical basis might be for these commodities using current cash prices and futures markets.

Distribute copies of HO-80, Hedging Transactions, to illustrate how basis affects hedging transactions. Work several examples on the chalkboard.

d. Margin Money - as noted in the definitions, margin money is supplied to the bookerage to make sure that the hedging account does not go into the "red". Initial margin is put up first and then if the futures price moves against you, maintenance margin payments will be required.

Use HO-81, How to Estimate Margin Requirements, to illustrate margin requirements and how maintenance margin is figured. Remember to point out that if the market moves in your favor, you can demand the margin from the broker the same as he/she will demand it from you.

e. Distribute copies of HO-82, Sample Hedging Problems, to enrollees and let them work and think through them one at a time. Discuss each one before going on to the next.

f. Give each enrollee a copy of HO-83 CME Feeder Cattle Futures Exercise, and let each one work through it, step by step. Caution them not to look ahead until they have completed each step. The exercise comes as close as any in giving a taste of making decisions in futures marketing.

5. **What are good sources of marketing information?**

Give enrollees a copy of HO-84, Publications and discuss the publications and reports available as shown. There are many available sources other than these, and you might want to point some of them out. e.g. Farm Bureau Market Line, Pro Farmer Marketing Service, etc.

F. Group Discussion

Sufficient time should be alloted for enrollees to discuss the points of this lesson. You may want to suggest a speculation simulation activity to do at home in order to become comfortable in how to handle trades in the futures market.

G. Conclusions

Conclusions which may be reached include:

1. Marketing involves much more than "selling the commodity."
2. Price is primarily a function of supply and demand and serves as a metering device to spread use of the supply through the next harvest.
3. We have a number of alternatives in marketing our commodities, and it is important to develop a marketing plan for our farm.
4. In order to determine a price objective, we have to know the cost of production, market fundamentals, and use charts.
5. Understanding basis is the key to successful hedging.
6.

Announcements

Social

On-the-Farm Instruction

When visiting enrollees following this lesson, be sure that they understand the mechanics of hedging and the effect of basis in hedging transactions. Help them develop a marketing plan for their farming operation. Help them determine if they are doing the best they can do. Get out last year's analysis and determine the cost of production for each enterprise. Each enrollee should set marketing goals just as they set production goals. Show them any options you are aware of on computer marketing aides. (e.g. MARKETCHART on AGNET, etc.)

Materials Needed

Instructor

TM-42: Marketing Functions
TM-43: What the Food Dollar Pays For
TM-44: Farm-Food Marketing Bill and Consumer Food Expenditures
TM-45: Components of Bill for Marketing Farm Foods, 1974
TM-46: Function of Price
TM-47: Factors Affecting Supply and Demand
TM-48: Grain Marketing
TM-49: Livestock Marketing
TM-50: Should I Forward Price
Current Market Publications

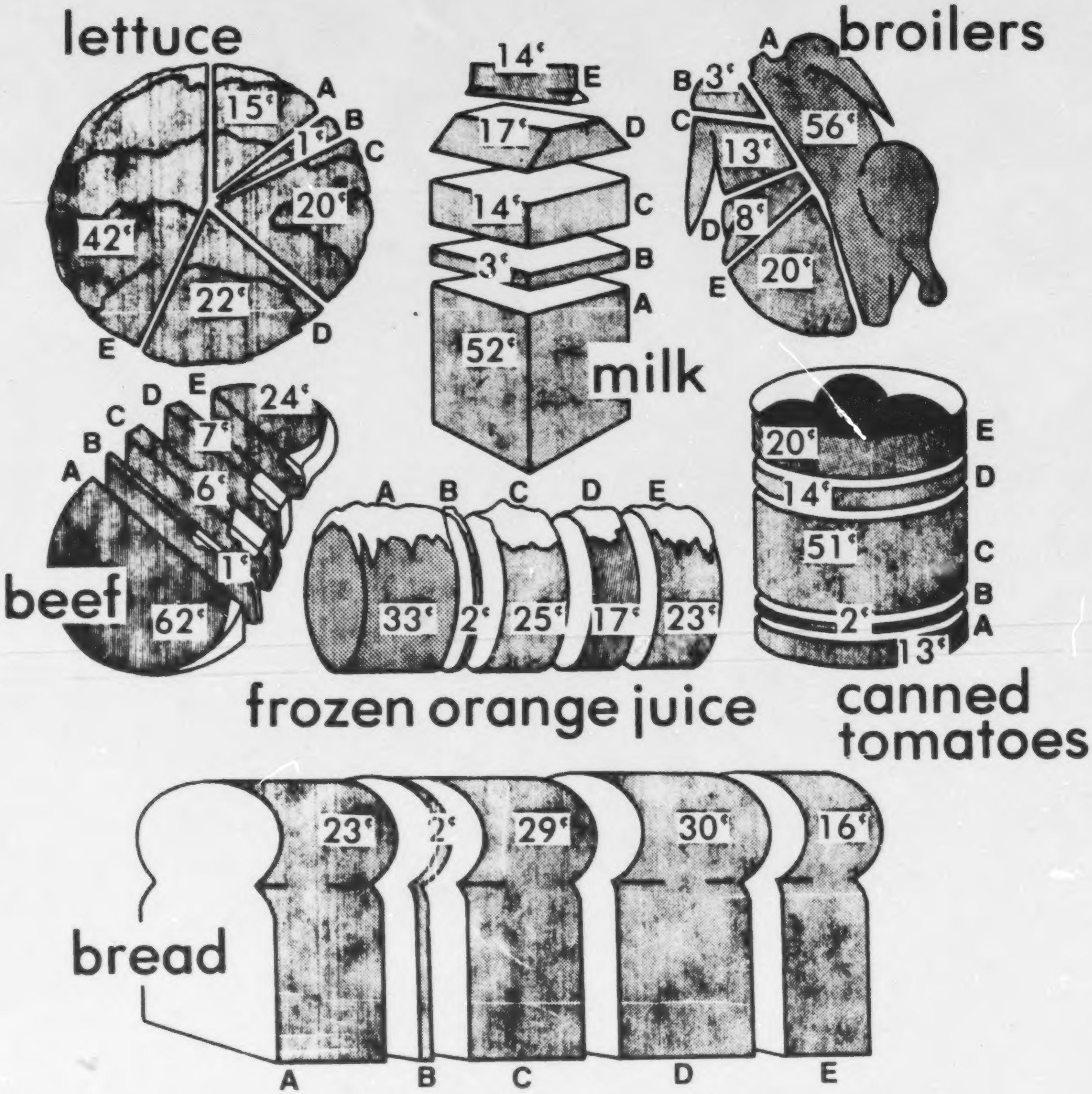
Student

HO-72: Marketing Quiz
HO-73: Costs of Storage
HO-74: Grain Drying Problem
HO-75: Percentage Shrinkage When Grain is Dried
HO-76: Forward Contract Example
HO-77: Sample Contract for Sale of Hogs
HO-78: Futures Market Terms and Definitions
HO-79: Basis
HO-80: Hedging Transactions
HO-81: How to Estimate Margin Requirements
HO-82: Sample Hedging Problems
HO-83: CME Feeder Cattle Futures Exercises
HO-84: Publications
Missouri Farm Business Analysis Record Book
Prior year's Farm Record Analysis

MARKETING FUNCTIONS

1. ASSEMBLY
2. TRANSPORTATION
3. PROCESSING
4. PACKAGING
5. STORAGE
6. PRICING
7. FINANCING
8. PROMOTION
9. RETAILING

WHAT THE FOOD DOLLAR PAYS FOR



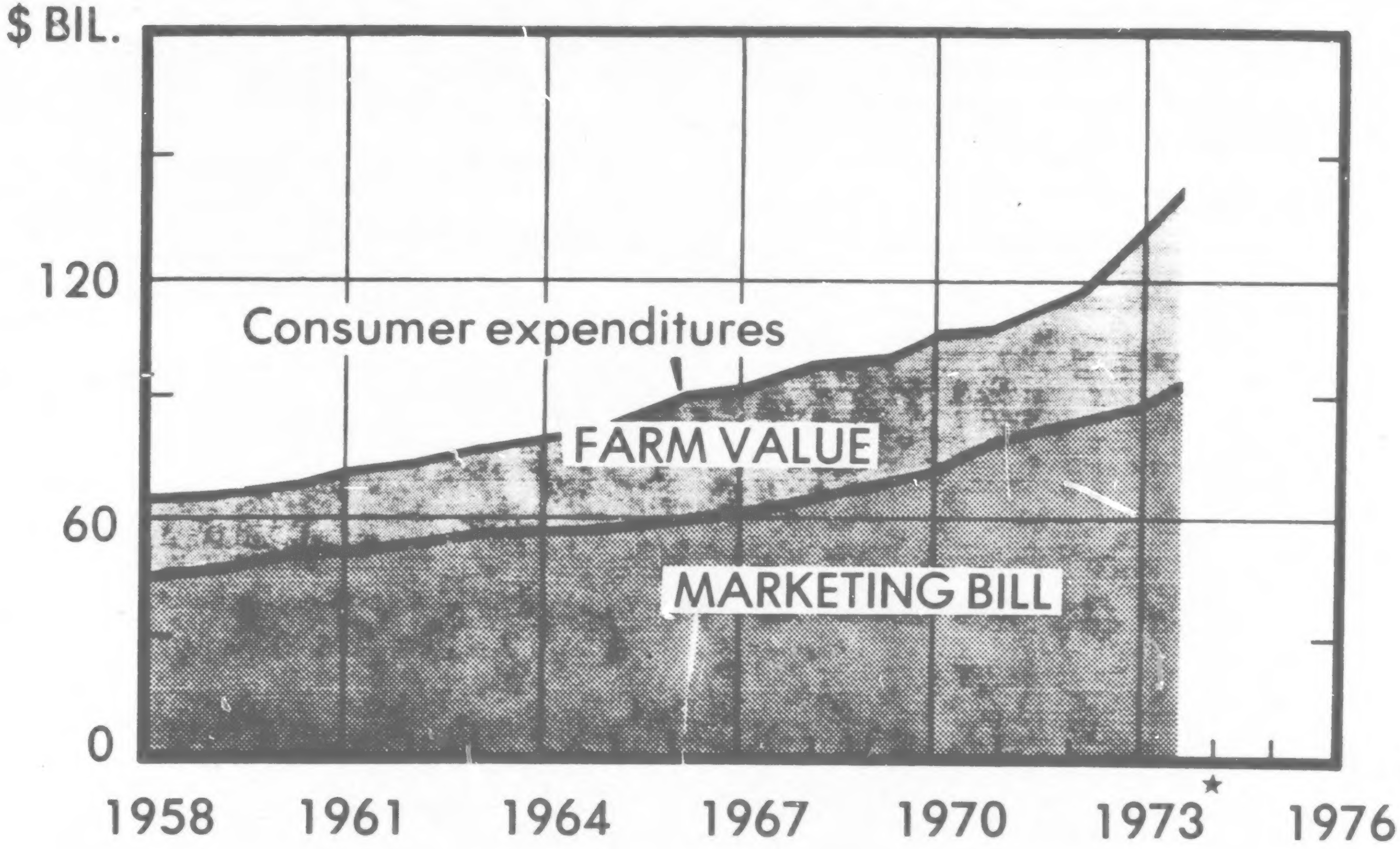
A - PRODUCTION B - ASSEMBLY C - PROCESSING

D - WHOLESALING, TRANSPORTATION

E - RETAILING

ESTIMATES ARE BASED ON 1974 PRICES, COSTS, AND MARGINS

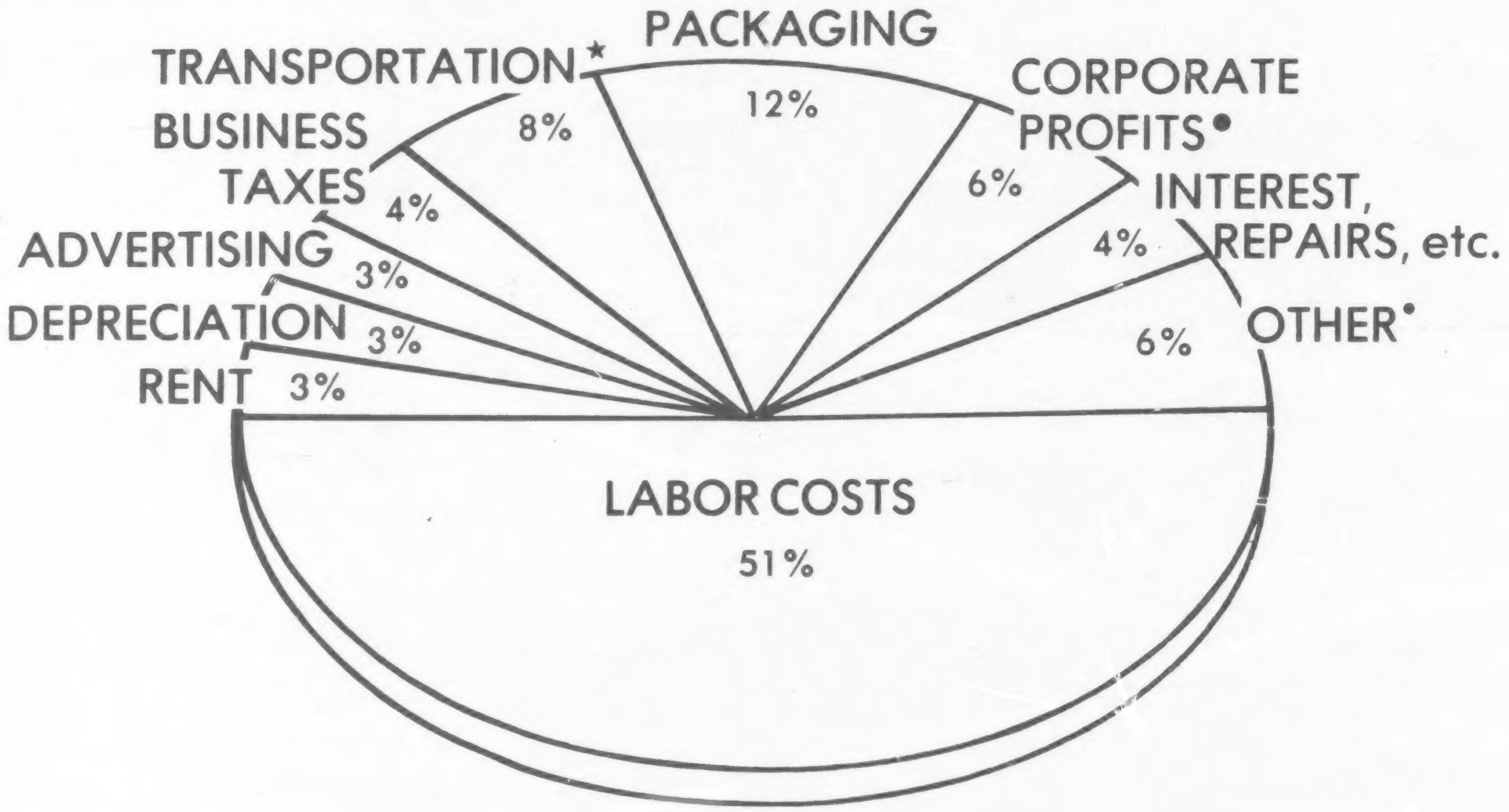
FARM-FOOD MARKETING BILL AND CONSUMER FOOD EXPENDITURES



FOR DOMESTIC FARM FOODS PURCHASED BY CIVILIAN CONSUMERS FOR CONSUMPTION BOTH AT HOME AND AWAY FROM HOME ★ PRELIMINARY

301
TM-44
FBMA III

COMPONENTS OF BILL FOR MARKETING FARM FOODS, 1974°



•*RESIDUAL INCLUDES SUCH COSTS AS UTILITIES, FUEL, PROMOTION, LOCAL FOR-HIRE TRANSPORTATION, INSURANCE*

● *BEFORE TAXES*
O *PRELIMINARY DATA*
★ *INTERCITY RAIL AND TRUCK*

FUNCTION OF PRICE

Price has to be at the level that will let a large or small crop last until next harvest, but not leave a large surplus.

FACTORS AFFECTING SUPPLY

TECHNOLOGY CHANGES

PRICE OF PRODUCT AND COMPETING PRODUCTS

COST OF PRODUCTION

SEASONS OF YEAR

FACTORS AFFECTING DEMAND

SEASONAL PREFERENCES

PERSONAL PREFERENCES

DISPOSABLE INCOME

PRICES OF SUBSTITUTE OR COMPETING PRODUCTS

ADVERTISING AND PROMOTION

GRAIN MARKETING

1. SELL CASH AT HARVEST
2. STORE CASH AT HARVEST
    - A. SELL AT HIGHER PRICE
    - B. USE AVERAGING
3. FORWARD CONTRACTING
    - A. FIXED PRICE CONTRACT
    - B. DEFERRED PRICE CONTRACT
    - C. POOLED SALES CONTRACT
4. HEDGING WITH FUTURES MARKET
    - A. HEDGE DURING GROWING SEASON
    - B. SELL CASH AT HARVEST-BUY DISTANT CONTRACT
    - C. PROTECT STORAGE PROFIT-HEDGE THE BASIS

LIVESTOCK MARKETING

1. SELL CASH
    - A. LOCAL MARKETS
    - B. AUCTIONS - PRIVATE AND COOPERATIVE
    - C. DIRECT TO PACKERS - CASH AND GRADE/YIELD
    - D. TERMINALS
    - E. DEALERS

2. CONTRACT PRODUCTION
    - A. FEEDER LIVESTOCK MARKETING PROGRAM
    - B. CONTRACT GROWING

3. FORWARD CONTRACTING

4. HEDGING ON THE FUTURES MARKET

SHOULD I FORWARD PRICE

1. HOW MUCH RISK DO I WANT TO ASSUME?
   - A. FINANCIALLY SECURE
   - B. YOUNG FARMER-NEED MINIMUM INCOME
2. WHAT IS MY PRICE OBJECTIVE?
   - A. COST OF PRODUCTION
   - B. FUNDAMENTALS
   - C. CHARTS

MARKETING QUIZ

_____ 1. Price fluctuations have increased in recent years. True or False

_____ 2. Marketing can be defined as:

a. all the steps and processes involved in getting the product from the producer to the consumer.
b. delivering grain to an elevator.
c. receiving a larger share of the consumer's food dollar.
d. none of the above.

_____ 3. Farmers' income would be higher if they obtained a larger share of the consumer's food dollar. True or False

_____ 4. The amount of processing in a product affects the marketing margin. True or False

_____ 5. Agribusiness firms exert strong forces upon the type of market options open to farmers. True or False

_____ 6. Pricing is one function of marketing. True or False

_____ 7. The largest item in the marketing margin for farm products is:

a. transportation
b. advertising
c. labor costs
d. corporate profits
e. none of the above

_____ 8. Compared to 1960, the current percent of income spent for food in the United States is:

a. higher
b. lower
c. about the same

_____ 9. The percent of consumer's food dollar received by farmers is highest for:

a. bread
b. tomatoes
c. milk
d. beef
e. all about the same

_____10. T-Bone steak at $2.00 per pound when fat steers are 40¢ per pound is a good example of excessive profits for meat packers. True or False

ANSWERS TO QUIZ

1. True
2. a
3. False (no relationship)
4. True
5. True
6. True
7. c
8. b
9. d
10. False

COSTS OF STORAGE[1]

I. Fixed Costs[2] (total bin costs for 1 year)

1. Interest on facilities (average investment x 10%) __________
2. Depreciation (cost of bin ÷ life in years) __________
3. Insurance (about 1% of original costs) __________
4. Taxes (about 1% of original costs) __________
5. Total Fixed Costs __________
6. Total Fixed Costs/Bu. Used __________

II. Variable Costs (per bushel)

7. Shrinkage (about 1%--not including drying loss) __________
8. Interest on grain (about 10% x price per bushel for annual costs) __________
9. Moving grain (about 2¢ per bushel) __________
10. Total Variable Costs Per Bushel __________
11. Total Costs __________
12. Expected Price Increase[3] __________

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[1] It is suggested that costs be calculated for a bin used at 100% capacity, 75% capacity, and 50% capacity.

[2] If actual investment cost for a bin is not available; use $1.00/bu. capacity--includes augers, floor, etc.

[3] Use price charts, outlook information, future bids, and/or ASCS loan rates to determine this figure.

GRAIN DRYING PROBLEM

I. Value of Drying Crop

1. Moisture in Grain: ______________

2. Moisture Base: ______________

3. Moisture Discount: ______________
[(Line 1 - Line 2) ÷ .5)]

4. Price of Dry Grain: ______________

5. Value of Discount: ______________
(Line 3 x Line 4)

6. Price of Wet Grain: ______________

II. Cost of Drying

7. Amount of Weight Loss: ______________
(Use HO-75 to determine weight shrink--as an example, 24% grain dried to 12% has a 13.4 weight loss.)

8. Value of Weight Loss: ______________
(Line 4 x Line 7)

9. Charge for Drying: ______________
(2¢/point or own figure)
(Line 1 - Line 2 x .02)

10. Total Cost of Drying ______________
(Line 8 + Line 9)

NOTE: If Line 5 is larger than Line 10; it pays to dry prior to selling.

PERCENTAGE SHRINKAGE WHEN GRAIN IS DRIED TO SPECIFIED MOISTURE LEVELS*

Initial moisture level	Shrinkage when grain is dried to:					
	13%	13.5%	14%	14.5%	15%	15.5%
%	%	%	%	%	%	%
13.0	0	0	0	0	0	0
13.5	1.07	0	0	0	0	0
14.0	1.65	1.08	0	0	0	0
14.5	2.22	1.66	1.08	0	0	0
15.0	2.80	2.23	1.66	1.09	0	0
15.5	3.37	2.81	2.24	1.67	1.09	0
16.0	3.95	3.39	2.83	2.25	1.68	1.09
16.5	4.52	3.97	3.41	2.84	2.26	1.68
17.0	5.10	4.55	3.99	3.42	2.85	2.28
17.5	5.67	5.12	4.57	4.01	3.44	2.87
18.0	6.25	5.70	5.15	4.59	4.03	3.46
18.5	6.82	6.28	5.73	5.18	4.62	4.05
19.0	7.40	6.86	6.31	5.76	5.21	4.64
19.5	7.97	7.44	6.90	6.35	5.79	5.23
20.0	8.55	8.01	7.48	6.93	6.38	5.83
20.5	9.12	8.59	8.06	7.52	6.97	6.42
21.0	9,70	9.17	8.64	8.10	7.56	7.01
21.5	10.27	9.75	9.22	8.69	8.15	7.60
22.0	10.84	10.33	9.80	9.27	8.74	8.19
22.5	11.42	10.90	10.38	9.86	9.32	8.78
23.0	11.99	11.48	10.97	10.44	9.91	9.38
23.5	12.57	12.06	11.55	11.03	10.50	9.97
24.0	13.14	12.64	12.13	11.61	11.09	10.56
24.5	13.72	13.22	12.71	12.20	11.68	11.15
25.0	14.29	13.79	13.29	12.78	12.26	11.74
25.5	14.87	14.37	13.87	13.37	12.85	12.33
26.0	15.44	14.95	14.45	13.95	13.44	12.93
26.5	16.02	15.53	15.03	14.54	14.03	13.52
27.0	16.59	16.11	15.62	15.12	14.62	14.11
27.5	17.17	16.68	16.20	15.70	15.21	14.70
28.0	17.74	17.26	16.78	16.29	15.79	15.29
28.5	18.32	17.84	17.36	16.87	16.38	15.88
29.0	18.89	18.42	17.94	17.46	16.97	16.48
29.5	19.47	19.00	18.52	18.04	17.56	17.07
30.0	20.04	19.58	19.10	18.63	18.15	17.66
30.5	20.61	20.15	19.69	19.21	18.74	18.25

*Formulas:

(1) Shrinkage = 100% minus $\frac{\text{\%D.M. wet grain}}{\text{\%D.M. dry grain}}$ x 100 + 5% (handling shrink)

(2) Value of shrink = price basis grade x shrinkage

(3) Return to drying = discount minus value of shrink

FORWARD CONTRACT EXAMPLE

______________________19______

Nº 6030

This is to certify that I,______________________have this day contracted and

sold to______________________bushels

of______________________at______________cents per bushel (____________lbs.

per bushel) to be clean, sound and dry and to grade No.______________to be delivered

into______________________elevator or cribs at______________________

on or before the______________day of______________________19______.

If damaged or inferior grain is delivered and accepted on this contract, the market difference at which such grain is selling under the contracted grade day of delivery shall be deducted from the contract price. Any extension of time to be at buyer's option. Any balance or overrun will be accepted only at the market price on day of delivery. Should elevator be full or incapacitated in any way, when grain is tendered, grain shall be delivered as soon thereafter as elevator can receive same.

I certify that this grain is in my possession and free of all liens and incumbrances.

____

Received of______________________

______________________*DOLLARS*

to apply on this contract.

____

SAMPLE CONTRACT FOR SALE OF HOGS

CONTRACT FOR SALE OF HOGS

THIS CONTRACT, made this ____ day of ________ 197 ______, between __________, __________ of ______________________________, hereinafter referred to as "Seller" and ______________________________ of ______________________________ hereinafter referred to as "Buyer"

WITNESSETH:

1. Seller agrees to sell and deliver F.O.B. to Buyer's yards at ______________________________, Missouri, between the hours of 7:00 o'clock a.m. and 1:00 o'clock p.m. on a day specified by Buyer during the period commencing ______________, 197 ______, and ending ______, 197 ______ pounds of hogs consisting of USDA Grade 1 and 2 barrows and gilts weighing from 200 to 230 pounds at a price of $ __________ per hundred weight.

2. All hogs shall be free of infection, bruises or other unsound condition. Hogs weighing under 180 pounds and over 300 pounds shall not be deliverable. Any hogs weighing under 200 pounds or more than 230 pounds will be priced in accordance with weight price differentials in effect at the time of delivery. Hogs grading USDA Grade 3 will be discounted according to price discounts in effect at the time of delivery. Title to the hogs shall pass to Buyer upon weighing. Grading and sorting to be done by Buyer. Grading and sorting by Buyer to be final.

3. **Delivery:** Buyer will not call for or accept delivery other than during the period specified in paragraph 1 above. Seller shall deliver full contract amount to Buyer on day specified by Buyer. Buyer shall notify Seller at least one day prior to delivery. In the event Buyer does not call for delivery, the last day of the period specified in paragraph 1 above shall be the day of delivery.

4. Seller understands that Buyer will hedge its price risk on the hogs purchased hereunder by selling a futures contract on the Chicago Mercantile exchange which binds the Buyer to deliver the hogs under said futures contract. Upon Seller's failure, therefore, for any reason whatsoever to deliver as specified to Buyer all of the hogs purchased hereunder, Seller agrees to pay to Buyer the difference between the total selling price on the Chicago Mercantile Exchange of the futures contract initially entered into in connection with this agreement and the total cost to Buyer of buying back said futures contract on the Chicago Mercantile Exchange. In addition to the foregoing payment, Seller agrees to pay Buyer One Hundred Dollars ($100.00) per contract to defray Buyer's expenses incurred in selling and buying back futures contract on the Chicago Mercantile Exchange.

5. Seller represents that on the day of delivery the hogs will not be subject to lien or chattel mortgage, but in the event said hogs are subject to chattel mortgage or lien, to advise the Buyer in order that the purchase price check may be paid jointly to the Seller and the lien holder.

6. Seller shall reimburse Buyer for his/her reasonable expenses incurred in the collection of damages herein provided.

7. This agreement shall be binding on the parties hereto, their successors and assigns.

IN WITNESS WHEREOF, the parties hereto have executed this Contract for Sale of Hogs on the day first above written.

FUTURES MARKET TERMS AND DEFINITIONS

Futures Contract - A legal instrument that specifies delivery of a commodity at a given time, price, grade, and location at some point in the future.

Hedger - One who has a position in the futures market and an opposite or offsetting position in the cash market. Risk is shifted by taking an offsetting position in the futures market for commodities being produced on the farm, e.g. you buy feeder pigs and sell a futures contract in order to protect price.

Speculator - One who takes a position in the futures market but does not have a position in the cash market, i.e. does not own the actual commodity being traded.

Basis - Difference between the cash market and futures markets. Also the difference between your cash market and the par market. Basis is a reflection of cost of transportation, month, grade differential and marketing.

Short Position - You have sold in the futures markets.

Long Position - You have bought in the futures markets.

Roundturn - A complete buy-sell -- gets you both into and out of the market.

Margin Money - "Good faith" money that keeps your trading account from going into the "red".

Open Interest - The number of outstanding contracts in a given commodity for a given delivery month.

BASIS - 900-1,100 CHOICE STEERS

+ = Futures Over Cash

Futures - Omaha 1976-80

January		$\bar{x}^{*} = -0.21^{**}$	
	Range	- 1.72 : + 2.31	
February		$\bar{x} = +0.50$	First 3 weeks
	Range	- 0.56 : 1.34	
		$\bar{x} = +1.36$	Last week
	Range	+ 0.07 : + 4.43	
March		$\bar{x} = +1.60$	
	Range	+ 0.68 : + 2.48	
April		$\bar{x} = +1.40$	First 3 weeks
	Range	+ 0.58 : + 2.13	
		$\bar{x} = +1.19$	Last week
	Range	- 0.26 : + 1.95	
May		$\bar{x} = +1.27$	
	Range	- 0.35 : + 3.59	
June		$\bar{x} = +0.98$	First 3 weeks
	Range	+ 0.28 : + 1.54	
		$\bar{x} = +0.19$	Last week
	Range	- 3.12 : + 2.79	
July		$\bar{x} = 0.00$	
	Range	- 1.70 : + 2.34	
August		$\bar{x} = +0.25$	First 3 weeks
	Range	- 0.90 : + 1.33	
		$\bar{x} = +0.58$	Last week
	Range	- 1.36 : + 3.77	
September		$\bar{x} = +0.41$	
	Range	- 1.06 : + 1.78	
October		$\bar{x} = +0.29$	First 3 weeks
	Range	- 0.62 : + 0.89	
		$\bar{x} = +1.26$	Last week
	Range	- 0.91 : + 3.18	
November		$\bar{x} = +1.59$	
	Range	- 0.31 : + 2.83	
1975-79			
December		$\bar{x} = +0.98$	First 3 weeks
	Range	- 0.14 : + 1.99	
		$\bar{x} = +0.18$	Last week
	Range	- 1.53 : + 1.65	

* $\bar{x}$ = mean or average basis

** - 0.21 = inverted basis -- means Omaha price was 21¢ higher than Chicago futures in nearby delivery month.

NOTE - to figure your local basis, correlate your local cash market with the basis at Omaha or other quoted locations where a basis history has been kept.

BASIS - FEEDER CATTLE

+ = Futures Over Cash

Futures - Omaha 1976-80

January $\bar{x} = -0.12$
Range $-2.40 : +2.64$

February $\bar{x} = +0.49$
Range $-2.65 : +3.12$

March $\bar{x} = +2.18$ First 3 weeks
Range $-0.37 : +7.52$
$\bar{x} = +1.16$ Last week
Range $-2.35 : +7.19$

April $\bar{x} = +0.96$ First 3 weeks
Range $-2.38 : +2.65$
$\bar{x} = +0.56$ Last week
Range $-3.87 : +2.97$

May $\bar{x} = -0.97$ First 3 weeks
Range $-2.56 : +0.80$
$\bar{x} = -1.23$ Last week
Range $-5.96 : +0.41$

June $\bar{x} = -2.53$
Range $-11.12 : +1.26$

July $\bar{x} = -1.54$
Range $-7.80 : +2.32$

August $\bar{x} = +0.20$ First 3 weeks
Range $-1.21 : +3.69$
$\bar{x} = -1.17$ Last week
Range $-3.29 : +0.43$

September $\bar{x} = -0.85$ First 3 weeks
Range $-2.21 : +1.59$
$\bar{x} = -2.74$ Last week
Range $-7.78 : +2.56$

October $\bar{x} = -2.73$ First 3 weeks
Range $-7.62 : +0.79$
$\bar{x} = -1.78$ Last week
Range $-4.76 : +1.83$

November $\bar{x} = -1.82$ First 3 weeks
Range $-4.78 : +1.27$
$\bar{x} = +2.05$ Last week
Range $-2.57 : +7.14$

1975-79

December $\bar{x} = +1.63$
Range $-0.52 : +5.89$

900-1,100 Pounds Choice Steers Basis Per Cwt.

+ = Omaha over St. Louis or St. Joseph, 1975-1979

	Omaha - St. Louis			Omaha - St. Joseph		
Month	Avg.	Low	High	Avg.	Low	High
Jan.	$+.27	$-.29	$ +.69	$+.65	$+.17	$+1.08
Feb.	+.26	-.46	+1.01	+.60	+.11	+1.07
Mar.	+.49	-.26	+.89	+.58	+.06	+1.38
Apr.	+.83	+.59	+.95	+.54	-.16	+1.26
May	+.77	-.16	+1.48	+.34	-.46	+.98
June	+.88	-.10	+1.77	+.35	-.22	+1.09
July	+1.38	+.46	+2.17	+.28	-.93	+.90
Aug.	+1.05	+.42	+1.58	+.70	+.55	+1.04
Sept.	+1.06	+.52	+1.49	+.59	+.11	+1.13
Oct.	+.21	+.07	+.36	+.46	-.41	+.89
Nov.	+.43	+.26	+.95	+.34	-.40	+.90
Dec.	+.94	+.42	+1.33	+.45	-.09	+1.16

600-700 Pound Feeder Cattle Basis Per Cwt. Choice or No. 1 Medium Frame

+ = Omaha over Kansas City or St. Louis, 1975-1979

	Omaha - St. Louis			Omaha - Kansas City		
Month	Avg.	Low	High	Avg.	Low	High
Jan.	+2.05	+1.00	+3.50	+.85	-.11	+1.70
Feb.	+1.64	+.41	+3.35	+.45	-.21	+1.52
Mar.	+1.49	+.66	+2.05	+.13	-2.75	+1.05
Apr.	+1.33	+.47	+1.74	+.08	-.75	+.95
May	+2.79	+.81	+5.58	+.74	-.03	+2.14
June	+3.40	+.77	+9.00	+1.92	-1.39	+5.69
July	+3.51	+1.50	+9.15	+2.02	+.13	+3.78
Aug.	+2.11	+.85	+4.70	+.70	+.16	+1.62
Sept.	+2.86	+.87	+5.81	+1.36	+.54	+1.82
Oct.	+3.10	+.89	+6.55	+2.02	-.51	+5.41
Nov.	+1.82	+1.68	+3.38	+1.85	+.86	+2.93
Dec.	+3.04	+2.10	+6.38	+1.35	-.33	+2.57

1-3, 200-220 Pounds Hogs Basis Per Cwt.

+ = Peoria over St. Louis or St. Joseph, 1975-1979

	Peoria - St. Louis			Peoria - St. Joseph		
Month	Avg.	Low	High	Avg.	Low	High
Jan.	+.05	-.11	+.24	+.45	-.17	+1.19
Feb.	+.03	-.40	+.52	+.33	-.21	+.64
Mar.	+.06	-.21	+.21	+.37	-.11	+.81
Apr.	+.10	-.23	+.36	+.49	+.29	+.63
May	+.22	-.35	+.63	+.73	+.43	+1.13
June	+.19	-.34	+.44	+.66	+.20	+1.67
July	+.25	-.38	+.63	+.69	+.48	+1.18
Aug.	+.06	-.31	+.24	+.66	+.46	+1.00
Sept.	-.08	-.32	+.09	+.42	+.11	+.73
Oct.	+.02	-.23	+.22	+.90	+.29	+2.13
Nov.	+.21	+.03	+.44	+.86	+.45	+1.27
Dec.	+.06	-.18	+.44	+.91	-.11	+2.13

BASIS - HOGS

+ = Futures Over Cash

Futures Peoria 1976-80

January $\bar{x} = -1.02$
Range $-3.00 : +2.33$

February $\bar{x} = -0.48$
Range $-1.71 : +0.48$ } First 3 weeks
$\bar{x} = -3.38$
Range $-4.95 : -0.06$ } Last week

March $\bar{x} = -1.77$
Range $-3.09 : +0.21$

April $\bar{x} = +0.46$
Range $+0.02 : +0.97$ } First 3 weeks
$\bar{x} = +4.06$
Range $+2.03 : +4.86$ } Last week

May $\bar{x} = +2.00$
Range $+0.26 : +3.22$

June $\bar{x} = +0.44$
Range $-1.43 : +1.53$ } First 3 weeks
$\bar{x} = -1.61$
Range $-3.41 : +0.92$ } Last week

July $\bar{x} = -0.48$
Range $-1.17 : +0.12$ } First 3 weeks
$\bar{x} = -2.59$
Range $-3.60 : -1.24$ } Last week

August $\bar{x} = -1.27$
Range $-2.21 : -0.38$ } First 3 weeks
$\bar{x} = -5.00$
Range $-7.06 : -2.80$ } Last week

September $\bar{x} = -2.39$
Range $-3.60 : -1.34$

October $\bar{x} = -0.96$
Range $-1.86 : -0.66$ } First 3 weeks
$\bar{x} = -0.08$
Range $-1.86 : +2.43$ } Last week

November $\bar{x} = +1.33$
Range $-0.67 : +3.20$

1975-79

December $\bar{x} = +0.20$
Range $-1.84 : +0.94$ } First 3 weeks
$\bar{x} = -1.26$
Range $-2.79 : +0.90$ } Last week

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FBMA III

HEDGING TRANSACTION

Perfect Hedge--Price exactly at the price objective

Date	Cash	Futures
January	Has 175 pigs on hand to market in July-wants $44.00	Sells July contract for $46.00
July	Sells 136 hogs locally @ $44.00	Buys July contract @ $46.00
Profit/Loss	-0-	-0-

Perfect Hedge--Up Market

Date	Cash	Futures
January	Has 175 pigs on hand to market in July-wants $44.00	Sells July contract for $46.00
July	Sells 136 hogs locally @ $48.00	Buys July contract @ $50.00
	Profit $4.00	Loss $4.00

Nets $44.00 (the price objective)

Perfect Hedge--Down Market

Date	Cash	Futures
January	Has 175 pigs on hand to market in July-wants $44.00	Sells July contract for $46.00
July	Sells 136 hogs locally @ $40.00	Buys July contract @ $42.00
	Loss $4.00	Profit $4.00

Nets $44.00 (the price objective)

Perfect Hedge--Widening Basis

Date	Cash	Futures
January	Has 175 pigs on hand to market in July-wants $44.00	Sells July contract for $46.00
July	Sells 136 hogs locally @ $38.50	Buys July contract @ $42.00
	Loss $5.50	Profit $4.00

Nets $42.50 ($1.50 lower than price objective)

HOW TO ESTIMATE MARGIN REQUIREMENTS

Commodity	Contract Size	Initial Margin Per Contract	Value Per Contract of 1 cent Move	Change in Price (example)	Additional Margin Money Required or Available for Recall
Corn	5,000 bu.	$ 400.00	$ 50.00	$ .30/bu.	$1,500.00
Soybeans	5,000 bu.	2,000.00	50.00	.50/bu.	2,500.00
Wheat	5,000 bu.	600.00	50.00	.40/bu.	2,000.00
Cotton	50,000 lb.	500.00	500.00	.10/lb.	5,000.00
Cattle (fat)	40,000 lb. ± 38 head	1,200.00	400.00	5.00 cwt.	2,000.00
Cattle (feeder)	42,000 lb. ± 65 head	1,000.00	420.00	5.00 cwt.	2,100.00
Hogs	30,000 lb. ± 133 head	700.00	300.00	5.00 cwt.	1,500.00

EXAMPLE: A farmer decides to hedge his inventory of 25,000 bushels of corn and 270 feeder pigs. His lender agrees to finance both initial and maintenance margin.

1. To estimate the margin that may be required throughout the hedge period, estimate the highest price that is likely to be reached during the period. Determine how much move that represents from the price at which the product is to be hedged. Then using the above table and example, calculate the greatest amount that may be needed including initial margin. This amount will equal the total margin line of credit required.
2. How much money is required when the contracts are sold?
   25,000 bushels corn = 5 contracts x $400.00 initial margin = $2,000.00
   270 hogs = 2 contracts x $700.00 initial margin = $1,400.00
3. How much additional money is required if corn futures go up 30 cents per bushel after he has sold?
   1 cent move = $50.00 x 30 cents move = $1,500.00 x 5 contracts = $7,500.00
   and later goes up another 10 cents?
   1 cent move = $50.00 x 10 cents move = $ 500.00 x 5 contracts = $2,500.00
   and hogs decline $3.00 cwt?
   1 cent per pound move = $300.00 x 3 cents move = $900.00 x 2 contracts = $1,800.00
   This money can be recalled from the broker to reduce the margin loan.

COST OF PRICE INSURANCE
PER ACRE, PER ANIMAL

Commodity	Quantity	Commission	Per Unit	Per Acre at 125 bu. at 40 bu.	Per Animal 1050# Steer 225# Hog
Mini/Corn	1,000 bu.	$17.50	1 3/4 cents bu.	$2.19	--
Mini/Soybeans	1,000 bu.	19.50	2 cents bu.	.80	--
Corn	5,000 bu.	47.50	1 cent bu.	1.12	--
Soybeans	5,000 bu.	52.50	1 cent bu.	.40	--
Mini/Cattle	20,000 lb.	32.00	16 cents cwt.	--	$1.68
Cattle	40,000 lb.	52.50	13 cents cwt.	--	1.37
Mini/Hogs	15,000 lb.	30.00	20 cents cwt.	--	.45
Hogs	30,000 lb.	47.00	16 cents cwt.	--	.36

Margins and Commissions Subject to Change

"Financing The Hedger", Heinold Commodities, Inc.

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FBMA III

MARGIN REQUIRED BY INCREMENTAL MARKET MOVES AND MONEY COST AT 9% PER ANNUM FOR SIX MONTHS

CORN, SOYBEANS, WHEAT

Change In Price Per Bushel	1 Contract 5,000 bu.		10 Contracts 50,000 bu.		20 Contracts 100,000 bu.		Interest Cost Per Bu.
	Margin	Intr. Cost	Margin	Intr. Cost	Margin	Intr. Cost	
$ 01	$ 50	$ 2.25	$ 500	$ 22.50	1,000	$ 45.00	$.001
05	250	11.25	2,500	112.50	5,000	225.00	.002
10	500	22.50	5,000	225.00	10,000	450.00	.005
.20	1,000	45.00	10,000	450.00	20,000	900.00	.009
50	2,500	112.50	25,000	1,125.00	50,000	2,250.00	.023
1.00	5,000	225.00	50,000	2,250.00	100,000	4,500.00	.045

MARGIN REQUIRED BY INCREMENTAL MARKET MOVES AND MONEY COST AT 9% PER ANNUM FOR SIX MONTHS

POUNDS - HEAD OF FAT CATTLE

Change In Price Per CWT	1 Contract 40,000 - 38		5 Contracts 200,000 - 190		15 Contracts 600,000 - 540		Interest Cost Per Head
	Margin	Intr. Cost	Margin	Intr. Cost	Margin	Intr. Cost	
$ .50	$ 200	$ 9.00	$ 1,000	$ 45.00	$ 3,000	$ 135.00	$ .25
1.00	400	18.00	2,000	90.00	6,000	270.00	.50
5.00	2,000	90.00	10,000	450.00	30,000	1,350.00	2.50
10.00	4,000	180.00	20,000	900.00	60,000	2,700.00	5.00

POUNDS - HEAD OF FAT HOGS

Change in Price Per CWT	1 Contract 30,000 - 133		4 Contracts 120,000 - 533		10 Contracts 300,000-1333		Interest Cost Per Head
	Margin	Intr. Cost	Margin	Intr. Cost	Margin	Intr. Cost	
$ .50	$ 150	$ 6.75	$ 600	$ 27.00	$ 1,500	$ 67.50	$ .05
1.00	300	13.50	1,200	54.00	3,000	135.00	.10
5.00	1,500	67.50	6,000	270.00	15,000	675.00	.51
10.00	3,000	135.00	12,000	540.00	30,000	1,350.00	1.01

"Financing The Hedger", Heinold Commodities, Inc.

SAMPLE HEDGING PROBLEMS

1. A producer used the futures market to forward price some cattle with the following actions and results:

    - On April 10 he sold a futures contract for $70.00 per cwt.
    - On August 12 he sold the cattle for $72.00 per cwt.
    - On August 12 he purchased a futures contract for $73.00 per cwt.
    - His brokerage fee and interest on margin was 50¢ per cwt.

    a. What price did he receive per cwt. for his cattle including futures gain or loss and trading costs?

    b. What was his basis?

    c. How much did he make or lose in the futures market including trading costs?

2. John P. Farmer has just completed harvesting soybeans and has 5700 bushels in the bin. He has several marketing alternatives. He could sell for cash now at $5.80 per bushel. He could hedge them at $6.40 in March. If the March basis is 35¢ what would his net price be if he hedged the beans for March delivery? Not considering any tax advantage, should Farmer sell for cash now or wait?

3. Farmer decides to sell his beans with a basis contract. The soybean mill has agreed to give Farmer 40¢ under the May futures price at any time from the 1st through the 20th of May. The May futures are running about $6.52 and Farmer decides that he would be satisfied with that price minus the contracted basis. How can he lock it in?

4. Farmer had a dandy bean prospect this year and decided to hedge part of his production for harvest delivery. He had a contract at $6.60 on November. When harvest rolled around, Farmer finished combining a bumper crop and has stored the beans in the local elevator where he generally sells cash grain. When November arrives, the local cash bid is $5.45 and November futures are $6.25. He looks down the road and sees that March futures are $6.60 and he knows that the normal March basis is about 40¢ between his local elevator and Chicago. Decision -- what should Farmer do?

KEY TO SAMPLE HEDGING PROBLEMS

1. A.

Cash		Futures	
sold 8/12	$72.00	sold 4/10	$70.00
		bought 8/12	73.00
			-$3.00

$72.00	cash sale
-3.00	loss in futures
$69.00	
- .50	costs
$68.50	= net price

B. $73.00 - $72.00 = $1.00

C. Made $3.50/cwt.

2. $6.40 - $.35 = $6.05 net price
Selling now or waiting depends on interest lost and cost of storage, probably should sell now.

3. He can lock it in by selling the May contract for $6.52. When May arrives, he can buy the contract back at the prevailing futures price and deliver his beans to the mill at 40¢ under. Regardless of the price at the time, he will end up with $6.12 for his beans.

4. He should roll his hedge forward to March if the gain in basis will offset storage and interest costs. In this case, he would gain the difference between the November basis and the March basis or 80¢ - 40¢ = 40¢.

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FBMA III

CME Feeder Cattle Futures Exercise

PRODUCTION PLANS:	You are backgrounding 350 calves for expected sale of yearling feeders at 650 pounds next May.
HEDGING OPPORTUNITY:	Five (5) CME Feeder Cattle Futures Contracts
ESTIMATED COSTS OF PRODUCTION:	Based on past records, you are expecting a $74.30/cwt. breakeven cost on these calves.
STRATEGY:	The Feeder Cattle Futures provide the opportunity to price your feeder cattle before they are sold. For purposes of this exercise, there will be five (5) opportunities to hedge all, or part, or none of your expected feeder cattle sales. If you do place a hedge, do not offset it until sale day.
OBJECTIVES:	Reduce price uncertainty. Protect a profitable operation.

Glen Grimes - UMC

January 7

MARKET INDICATORS

1. Cattle price gains in the first half of this year will be moderated by large meat supplies.
2. Winter weather through December was much warmer than a year ago in much of the Midwest.
3. Beef consumption is likely to be down about two pounds from a year earlier.
4. Meat price increases in the first half will be tempered by the sluggish economy and large pork supplies.
5. Today's market for feeder cattle:

	400-500 lbs.	600-700 lbs.
Kansas City, Missouri	86.00-100.00	78.00-86.00

CME May Feeder Cattle Futures are now:

Trading @	$84.17	
Basis	______	
Localized Price		
Estimated Breakeven		$74.30

Should I hedge (sell) my feeder cattle now? ________ Yes - No

If yes, how many contracts? ________ 1 - 5

February 7

MARKET INDICATORS

1. Cattle and calves on feed February 1 for slaughter market in the seven states were down 9 percent from a year ago and 8 percent less than two years ago.

2. 3 percent decrease in annual beef production estimated.

3. Feeder cattle supplies outside feedlots on January 1 were one percent greater than a year ago.

4. Yearling feeder steers may average in the low $80's in the first quarter.

5. Today's market for feeder cattle:

	400-500 lbs.	600-700 lbs.
Kansas City, Missouri	91.00-105.00	83.00-90.00
CME May Feeder Cattle Futures are now:		
Trading @	$86.90	
Basis	______	
Localized Price		
Estimated Breakeven		$74.30

Should I hedge (sell) my feeder cattle now? ______ Yes - No

If yes, how many contracts: ______ 1 - 5

March 10

MARKET INDICATORS

1. Replacement cattle are going into feedlots at a very slow rate, which is putting pressure on cash feeders.

2. This week the lighter weight feeder cattle have been in less demand than the heavier fleshy kind.

3. Today's market for feeder cattle:

	400-500 lbs.	600-700 lbs.
Kansas City, Missouri	86.00-97.00	74.00-82.00
CME May Feeder Cattle Futures are now:		
Trading @	$81.12	
Basis	______	
Localized Price		
Estimated Breakeven		$74.30

Should I hedge (sell) my feeder cattle now? ______
Yes - No

If yes, how many contracts? ______
1 - 5

April 10

MARKET INDICATORS

1. There are several indications that the recent break in the cattle market may be over.

2. Lighter weight cattle selling mostly steady to $5 higher and middle weight and fed cattle $2 - $4 lower than the previous week.

3. Most of the cattle runs have been made up of feeder cattle.

4. Net margins for cattle feeders continue unfavorable and increased feeding costs will continue to put additional downward pressure on feeder cattle prices.

5. Today's market for feeder cattle:

	400-500 lbs.	600-700 lbs.
Kansas City, Missouri	85.00-96.00	66.00-80.00

CME May Feeder Cattle Futures are now:

Trading @	$69.40	
Basis	______	
Localized Price		
Estimated Breakeven		$74.30

Should I hedge (sell) my feeder cattle now? ________ Yes - No

If yes, how many contracts? ________ 1 - 5

May 1

MARKET INDICATORS

1. Cattle and calves on feed May 1 for slaughter market in the seven states is expected to be down 11 percent from a year ago and 13 percent less than two years ago.

2. Large meat supplies and a slowing economy will probably hold down meat price gains during most of the year.

3. Movement has slowed slightly because of heavy field work.

4. Many analysts expect hog and cattle prices will strengthen seasonally this summer.

5. Today's market for feeder cattle:

	400-500 lbs.	600-700 lbs.
Kansas City, Missouri	79.00-87.00	65.00-72.00
CME May Feeder Cattle Futures are now:		
Trading @	$66.80	
Basis	______	
Localized Price		
Estimated Breakeven		$74.30

Should I hedge (sell) my feeder cattle now? ________
Yes - No

If yes, how many contracts? ______
1 - 5

MAY 15, 1980

SALE DAY

1. Actual Cost — $74.30 per cwt.
2. Sold 350 yearlings @ — $69.30 per cwt.
3. Offset Feeder Cattle Futures @ — $69.50 + 30¢ trading costs = $69.80 per cwt.
4. Actual Basis — -.50

If you did not hedge, you received $69.30/cwt. [illegible] your cattle.

If you did hedge, you received:

	PRICE		NUMBER OF CONTRACTS		
January 2 Hedge:	$83.67/cwt.	x	1	=	$83.67
February 7 Hedge:	86.40/cwt.	x	1	=	86.40
March 13 Hedge:	79.62/cwt.	x	1	=	79.62
April 10 Hedge:	68.90/cwt.	x	1	=	68.90
May 1 Hedge:	66.30/cwt.	x	1	=	66.30
			5		384.69 ÷ 5
			= TOTAL		76.94

(*See following page for each calculation)

If you hedged one contract each month, you receive an average price of $76.94/cwt. (384.69 ÷ 5). Since everyone has a different strategy, fill in the blanks below and figure your average price per cwt.

			NUMBER OF CONTRACTS		
January:	$84.40	x	________	=	$ ________
February:	87.13	x	________	=	________
March:	81.35	x	________	=	________
April:	69.63	x	________	=	________
May:	67.03	x	________	=	________
May 15 (cash):	69.30	x	________	=	________
TOTAL CONTRACTS			________		$ ________ TOTAL

DIVIDE THE DOLLAR TOTAL BY NUMBER OF CONTRACTS TO GET YOUR AVERAGE PRICE PER CWT. $ ________

YOUR AVERAGE PRICE $_______ - COSTS $74.30 = PROFIT (LOSS) $ _______ cwt.

CALCULATIONS FOR ACTUAL PRICE RECEIVED PER CWT. IN EACH MONTH

January 7 Hedge

Expected Cash		Sell May FC	$84.17
Sold Cattle	$69.30	Offset Hedge in May	69.80
Futures	+ 14.37	Profit on Futures	$14.37
Actual price received	$83.67		

February 7 Hedge

Expected Cash		Sell May FC	$86.90
Sold Cattle	$69.30	Offset Hedge in May	69.80
Futures	+ 17.10	Profit on Futures	$17.10
Actual price received	$86.40		

March 10 Hedge

Expected Cash		Sell May FC	$81.12
Sold Cattle	$69.30	Offset Hedge in May	69.80
Futures	+ 10.32	Profit on Futures	10.32
Actual price received	$79.62		

April 10 Hedge

Expected Cash		Sell May FC	$69.40
Sold Cattle	$69.30	Offset Hedge in May	69.80
Futures	- .40	Loss on Futures	-.40
Actual price received	$68.90		

May 1 Hedge

Expected Cash		Sell May FC	$66.80
Sold Cattle	$69.30	Offset Hedge in May	69.80
Futures	- 3.00	Loss on Futures	- 3.00
Actual price received	$66.30		

PUBLICATIONS
About
Livestock Production, Marketings,
Slaughter, Prices and Outlook

1. Data on Supply and Potential Supply

HOGS AND PIGS (Free) - 4 times/yr. for 14 states (Mar. 1 Sept. 1
2 times for whole country Dec.1 June 1)

CATTLE ON FEED (Free)- 12 times/yr. for 7 states
4 times/yr. for 23 states

CATTLE (Free) - 2 times/yr.

Address: Economics and Statistics Service
U. S. Department of Agriculture
Washington, D.C. 20250

2. Data on Livestock and Livestock Product Prices

LIVESTOCK, MEAT, WOOL, MARKET NEWS (Fee)

Address: Livestock, Poultry, Grain and Seed Division
Agricultural Marketing Service
Washington, D. C. 20250

"THE YELLOW SHEET" (Fee)
Address:
The National Provisioner
Daily Market & News Service
15 West Huron Street
Chicago, Illinois 60610

DAILY MARKET SUMMARY (Fee)
WEEKLY MARKET SUMMARY (Fee)
Address:
Missouri Department of Agriculture
Market News Section
100 East Capitol
Jefferson City, Missouri 65101

3. Data on Outlook Letters and Publications

MISSOURI AGRICULTURAL OUTLOOK LETTER (Free)

Address: Cooperative Extension Service
U. S. Department of Agriculture
University of Missouri
Clark Hall
Columbia, Missouri 65211

LIVESTOCK AND MEAT SITUATION (Free)

Address: Economics and Statistics Service
U. S. Department of Agriculture
0054 South Building
14th & Independence Ave., S. W.
Washington, D. C. 20250

FARM BUSINESS MANAGEMENT ANALYSIS

UNIT III: Adjusting the Farm Business to Increase Profit

Lesson 8: Adjusting Capital Investments to Increase Net Income

A. Review

The previous lesson, Planning the Farm Marketing Program, should be reviewed. Possible conclusions may have included:

1. Marketing involves much more than "selling the commodity."
2. Price is primarily a function of supply and demand and serves as a metering device to spread use of the supply through the next harvest.
3. We have a number of alternatives in marketing our commodities, and it is important to develop a marketing plan for our farm.
4. In order to determine a price objective, we have to know our cost of production, market fundamentals, and use charts.
5. Understanding basis is the key to successful hedging.
6.

B. Objective

To determine the capital investments which should be made to maximize net farm income.

C. Motivation

Distribute a blank sheet of paper to each couple. Ask them to list the new capital investments required from their revised livestock and crop plans that were completed in previous lessons. Have them check those which are a necessity in order to implement their revised plans. The question now is "Will the the revised plans improve income enough to make these investments both profitable and feasible?" Answering this is the subject for this lesson.

D. Key Points

Key points which will be accomplished are as follows:

1. **What is my present capital investment (total and per acre) in:**
    a. **Crops and Feed**
    b. **Livestock**
    c. **Machinery**
    d. **Buildings**
    e. **Land**

2. **What additional investments are needed for the revised livestock/crop plans?**

3. **Are these investments profitable?**

4. **Are these investments feasible?**

E. Introduction of Information

Begin by pointing out that the figures we will be using are averages for FBMA enrollees in 1981 and probably do not apply to each of the class members. They can be used to illustrate trends and general principles.

1. **What is my present capital investment (total and per acre) in:**

   a. Crops and feed
   b. Livestock
   c. Machinery
   d. Buildings
   e. Land

   Distribute HO-85 and the Farm Return and Costs print-out page for each couple (blue page). Let them copy from the lower right part of the page the information for their operation. Use "End of Year" figures. Each couple can calculate their own "Per Tillable Acre" figure and enter it on the handout. Also, ask them to enter the rate earned on Total Farm Investment and landlords investment for their farm and for the average. Next, show TM-51 "1981 FBMA Investments" and copy the average per tillable acre figure in the "Average" column.

   Emphasize that there is no "correct" figure for everyone. The purpose of this comparison is to provide data from farms similar to the enrollee's farm so they have a "standard" they can use. It should be pointed out that in 1981 the average FBMA enrollee had a return on total farm investment of 4.4% and was probably paying over 14% interest for operating funds. Alternatives to use in increasing the rate of return are to increase the income or reduce the investment.

2. **What additional investments are needed for the revised livestock/crop plans?**

   Ask the group to refer to the list of necessary capital investments they prepared at the start of the class. Have them identify alternatives to these investments. As an example, if a larger tractor is needed for the revised plan, the group may identify the following alternatives: buy a new tractor; buy a used tractor; lease a tractor; rent a tractor for a short period during tillage season; custom hire some work; hire hourly labor and operate present equipment more hours; etc. Other alternatives can probably be identified by the group.

   Next, have the individuals put a dollar figure beside each of the investments they listed as necessary. Information on handouts in previous lessons provide ranges in costs of selected investments; however, someone within about every group can provide an estimate of the cost close enough for the preliminary planning being done at this time.

3. Are these investments profitable?

Point out that determining profitability sounds easy, but is actually very difficult. As an example, an enrollee may have identified that the problem in his hog operation is a high death loss following weaning. (He looked at the enterprise analysis and obeserved that the death loss percentage which is after weaning was 10% above the average and that the average weight of the death loss was 32 pounds). As a result of this observation, it appears that a nursery is needed. The estimated cost is $12,000 and will last 15 years. But, the question is, "How much will the income over variable costs increase as a result of the nursery?" If he assumes conservatively that death loss will be reduced 10% (the amount it is over the average) or 100 head per year, he could arrive at the increase in income over variable costs by multiplying the 100 head by the price per head minus the cost of operating the nursery, pig feed, etc. If, as an example, this comes out to $1,800 per year increased income over costs, they can use the Index of Profitability and/or Present Value concept to determine profitability over time. (The effect on income taxes will need to be considered and can be considered by adjusting the $1,800 increased income over variable costs to reflect the change for this problem.

a. Determining profitability

Distribute HO-86 "Present Value of Annuity of 1." If 10% is assumed to be the average interest rate for the next 10 years, have the group look under the 10% column at 15 years and find the factor of 7.606. 7.606 x the average increased income over variable costs per year of $1,800 (7.606 x $1,800) = $13,691. With the assumptions used in this example, the net present value of building the nursery is $1691 ($13,691-$12,000). The index of profitability is 1.14 (13,691 ÷ $12,000). This indicates the investment is profitable, but there is not much room for error in the estimates. The farmer may elect to look at alternatives such as farrowing fewer times and leaving the pigs in the farrowing house for a longer period, remodeling an existing building, not farrowing during the season of high death loss, etc.

The group may want to work problems using investments being considered by others in the group.

(The instructor may want to refer to FBMA Unit I, Lesson 10 for more information on using this method of evaluation if there is salvage value, inflation, etc.)

4. Are these investments feasible?

Point out that an investment must be feasible (able to pay for it) regardless of profitability.

a. Methods of loan repayment

Show TM-52 "Methods of Loan Repayment." Distribute HO-87 Annual Amortization Table. Let the group work the problem as shown on TM-52 using both methods of loan repayment:

(1) Amortized or Installment (Even Payment)
(2 year @ 12%) $12,000 x .2191 = $2629
(15 years @ 12%) $12,000 x .1468 = $1762

(2) Commercial or Unpaid Balance (Even Principal)
(7 years @ 12%)

In the above example, the increased income ($1,800) will not service the loan unless the length of loan is the same as the estimated life of the facility.

b. Compare other alternatives for feasibility.

Several possibilities can be identified to make the loan feasible such as: make a down payment, secure a loan with lower interest, or operate the facility to increase the income, etc.

c. Use the INVEST computer program.

The INVEST computer program on HO-88 can be used to determine both profitability and feasibility. An example for an irrigation system is included. If the local department does not have a remote terminal, the input form can be mailed to Agricultural Education, UMC.

F. Discussion

Most of the time in the class should probably be spent working examples of capital investments identified by individuals as being a necessity for them to implement changes in their crop/livestock programs.

G. Conclusions

The following might be conclusions for this lesson:

1. The investment in a farm business and the rate earned on the investment should be identified and a comparison made with similiar businesses.

2. Investments needed to implement changes in the crop/livestock program should be identified.

3. Alternatives and their required investments should be listed.

4. The profitability and feasibility of these investments should be determined.

Announcements

Ask the group to have investments identified that they want to consider prior to your visit this month. Also, ask them to check on prices, etc. if possible.

Social

On-the-Farm Instruction

During the visit this month, most of the emphasis should be placed on developing plans to implement changes in the crop/livestock program especially as it relates to investments required to make these changes. Pick out one or two capital investments the enrollees are interested in and run a profitability and feasibility analysis on them.

Materials Needed

Instructor

TM-51: 1981 FBMA Investments
TM-52: Methods of Loan Repayment

Students

HO-85: My Investments
HO-86: Present Value of Annuity of 1
HO-87: Annual Amortization Table
HO-88: INVEST Input Form and Example
Missouri Farm Business Analysis Record Book
Prior year's Farm Record Analysis

1981 FBMA INVESTMENTS

	INVESTMENT	TOTAL[1]	PER TILLABLE ACRE
1.	CROPS & FEED	26,187	79.35
2.	LIVESTOCK	28,494	86.35
3.	MACHINERY	33,112	100.34
4.	BUILDINGS	19,073	57.80
5.	LAND	409,103	1239.71
6.	TOTAL	515,969	1563.55

AVERAGE NUMBER TILLABLE ACRES - 330

AVERAGE NUMBER TOTAL ACRES - 400

AVERAGE RATE EARNED ON TOTAL FARM - INVESTMENT % = 4.4

AVERAGE RATE EARNED ON LANDLORD'S INVESTMENT % = 5.0

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[1] INCLUDES LANDLORD'S SHARE

METHODS OF LOAN REPAYMENT

1. AMORTIZED OR INSTALLMENT (EVEN PAYMENT)

(7 YEARS @ 12%) 12,000 x .2191 = $2,629

(15 YEARS @ 12%) 12,000 x .1468 = $1,762

2. COMMERCIAL OR UNPAID BALANCE (EVEN PRINCIPAL)
(7 YEARS @ 12%)

YEAR	UNPAID PRINCIPAL	PRINCIPAL PAYMENT	INTEREST PAYMENT	TOTAL PAYMENT
1	$12,000	$1,714	$1,440	$3,514
2	10,286	1,714	1,234	2,948
3	8,572	1,714	1,029	2,743
4	6,858	1,714	823	2,537
5	5,144	1,714	617	2,331
6	3,430	1,714	412	2,126
7	1,716	1,716	206	1,922

My Investments
Year ___

	Investments	Total Operator	Total Farm	Per Tillable Acre Operator	Per Tillable Acre Total Farms	Average 1981 FBMA
1.	Crops and Feed	___	___	___	___	___
2.	Livestock	___	___	___	___	___
3.	Machinery	___	___	___	___	___
4.	Buildings	___	___	___	___	___
5.	Land	___	___	___	___	___
6.	Total	___	___	___	___	___

Number of tillable acres ___

	Our Farm	FBMA Average
Rate Earned on Total Farm Investment	___	___
Rate Earned on Landlord's Investment	___	___

PRESENT VALUE OF ANNUITY OF 1

Year	4%	5%	6%	7%	8%
1	0.9615	0.9523	0.9433	0.9345	0.9259
2	1.8860	1.8594	1.8333	1.8080	1.7832
3	2.7750	2.7232	2.6730	2.6243	2.5770
4	3.6298	3.5459	3.4651	3.3872	3.3121
5	4.4518	4.3294	4.2123	4.1001	3.9927
6	5.2421	5.0756	4.9173	4.7665	4.6228
7	6.0020	5.7863	5.5823	5.3892	5.2063
8	6.7327	6.4632	6.2097	5.9712	5.7466
9	7.4353	7.1078	6.8016	6.5152	6.2468
10	8.1108	7.7217	7.3600	7.0235	6.7100
11	8.7604	8.3064	7.8868	7.4986	7.1389
12	9.3850	8.8632	8.3838	7.9426	7.5360
13	9.9856	9.3935	8.8526	8.3576	7.9037
14	10.5631	9.8986	9.2949	8.7454	8.2442
15	11.1183	10.3796	9.7122	9.1079	8.5594
16	11.6522	10.8377	10.1058	9.4466	8.8513
17	12.1656	11.2740	10.4772	9.7632	9.1216
18	12.6592	11.6895	10.8276	10.0590	9.3718
19	13.1339	12.0853	11.1581	10.3355	9.6035
20	13.5903	12.4622	11.4699	10.5940	9.8181
21	14.0291	12.8211	11.7640	10.8355	10.0168
22	14.4511	13.1630	12.0415	11.0612	10.2007
23	14.8568	13.4885	12.3033	11.2721	10.3710
24	15.2469	13.7986	12.5503	11.4693	10.5287
25	15.6220	14.0939	12.7833	11.6535	10.6747
26	15.9827	14.3751	13.0031	11.8257	10.8099
27	16.3295	14.6430	13.2105	11.9867	10.9351
28	16.6630	14.8981	13.4061	12.1371	11.0510
29	16.9837	15.1410	13.5907	12.2776	11.1584
30	17.2920	15.3724	13.7648	12.4090	11.2577
31	17.5884	15.5928	13.9290	12.5318	11.3497
32	17.8735	15.8026	14.0840	12.6465	11.4349
33	18.1476	16.0025	14.2302	12.7537	11.5138
34	18.4111	16.1929	14.3681	12,8540	11.5869
35	18.6646	16.3741	14.4982	12.9476	11.6545
36	18.9082	16.5468	14.6209	13.0352	11.7171
37	19.1425	16.7112	14.7367	13.1170	11.7751
38	19.3678	16.8678	14.8460	13.1934	11.8288
39	19.5844	17.0170	14.9490	13.2649	11.8785
40	19.7927	17.1590	15.0462	13.3317	11.9246
41	19.9930	17.2943	15.1380	13.3941	11.9672
42	20.1856	17.4232	15.2245	13.4524	12.0066
43	20.3707	17.5459	15.3061	13.5069	12.0432
44	20.5488	17.6627	15.3831	13.5579	12.0770
45	20.7200	17.7740	15.4558	13.6055	12.1084
46	20.8846	17.8800	15.5243	13.6500	12.1374
47	21.0429	17.9810	15.5890	13.6916	12.1642
48	21.1951	18.0771	15.6500	13.7304	12.1891
49	21.3414	18.1687	15.7075	13.7667	12.2121
50	21.4821	18.2559	15.7618	13.8007	12.2334

PRESENT VALUE OF ANNUITY OF 1 (continued)

Year	9%	10%	11%	12%	13%	14%
1	.917	.909	.901	.893	.885	.877
2	1.759	1.736	1.713	1.690	1.668	1.647
3	2.531	2.487	2.444	2.402	2.361	2.322
4	3.240	3.170	3.102	3.037	2.974	2.914
5	3.890	3.791	3.696	3.605	3.517	3.433
6	4.486	4.355	4.231	4.111	3.998	3.889
7	5.033	4.868	4.712	4.564	4.423	4.288
8	5.535	5.335	5.146	4.968	4.799	4.639
9	5.995	5.759	5.537	5.328	5.132	4.946
10	6.418	6.145	5.889	5.650	5.426	5.216
11	6.805	6.495	6.207	5.938	5.687	5.453
12	7.161	6.814	6.492	6.194	5.918	5.600
13	7.487	7.103	6.750	6.424	6.122	5.842
14	7.786	5.367	6.982	6.628	6.302	6.002
15	8.060	7.606	7.191	6.811	6.462	6.142
16	8.313	7.824	7.379	6.974	6.604	6.265
17	8.544	8.022	7.549	7.120	6.729	6.373
18	8.756	8.201	7.702	7.250	6.840	6.467
19	8.950	8.365	7.839	7.366	6.938	6.550
20	8.129	8.514	7.963	7.469	7.025	6.623
24	9.707	8.985	8.348	7.784	7.283	6.835
25	9.823	9.077	8.422	7.843	7.330	6.873
30	10.274	9.427	8.694	8.005	7.496	7.003
36	10.612	9.677	8.879	8.192	7.598	7.079
40	10.757	9.779	8.951	8.244	7.634	7.105
48	10.934	9.897	9.030	8.297	7.671	7.130
50	10.962	9.915	9.042	8.304	7.675	7.133

ANNUAL AMORTIZATION TABLE

Year	4%	5%	6%	7%	8%
1	1.0400	1.0500	1.0600	1.0700	1.0800
2	0.5301	0.5378	0.5454	0.5530	0.5607
3	0.3603	0.3672	0.3741	0.3810	0.3880
4	0.2754	0.2820	0.2885	0.2952	0.3019
5	0.2246	0.2309	0.2373	0.2438	0.2504
6	0.1907	0.1970	0.2033	0.2097	0.2163
7	0.1666	0.1728	0.1791	0.1855	0.1920
8	0.1485	0.1547	0.1610	0.1674	0.1740
9	0.1344	0.1406	0.1470	0.1534	0.1600
10	0.1232	0.1295	0.1358	0.1423	0.1490
11	0.1141	0.1203	0.1267	0.1333	0.1400
12	0.1065	0.1128	0.1192	0.1259	0.1326
13	0.1001	0.1064	0.1129	0.1196	0.1265
14	0.0946	0.1010	0.1075	0.1143	0.1212
15	0.0899	0.0963	0.1029	0.1097	0.1168
16	0.0858	0.0922	0.0989	0.1058	0.1129
17	0.0821	0.0886	0.0954	0.1024	0.1096
18	0.0789	0.0855	0.0923	0.0994	0.1067
19	0.0761	0.0827	0.0896	0.0967	0.1041
20	0.0735	0.0802	0.0871	0.0943	0.1018
21	0.0712	0.0779	0.0850	0.0922	0.0998
22	0.0691	0.0759	0.0830	0.0904	0.0980
23	0.0673	0.0741	0.0812	0.0887	0.0964
24	0.0655	0.0724	0.0796	0.0871	0.0949
25	0.0640	0.0709	0.0782	0.0858	0.0936
26	0.0625	0.0695	0.0769	0.0845	0.0925
27	0.0612	0.0682	0.0756	0.0834	0.0914
28	0.0600	0.0671	0.0745	0.0823	0.0904
29	0.0588	0.0660	0.0735	0.0814	0.0896
30	0.0578	0.0650	0.0726	0.0805	0.0888
31	0.0568	0.0641	0.0717	0.0797	0.0881
32	0.0559	0.0632	0.0710	0.0790	0.0874
33	0.0551	0.0624	0.0702	0.0784	0.0868
34	0.0543	0.0617	0.0695	0.0777	0.0863
35	0.0535	0.0610	0.0689	0.0772	0.0858
36	0.0528	0.0604	0.0683	0.0767	0.0853
37	0.0522	0.0598	0.0678	0.0762	0.0849
38	0.0516	0.0592	0.0673	0.0757	0.0845
39	0.0510	0.0587	0.0668	0.0753	0.0841
40	0.0505	0.0582	0.0664	0.0750	0.0838
41	0.0500	0.0578	0.0660	0.0746	0.0835
42	0.0495	0.0573	0.0656	0.0743	0.0832
43	0.0490	0.0569	0.0653	0.0740	0.0830
44	0.0486	0.0566	0.0650	0.0737	0.0828
45	0.0482	0.0562	0.0647	0.0734	0.0825
46	0.0478	0.0559	0.0644	0.0732	0.0823
47	0.0475	0.0556	0.0641	0.0730	0.0822
48	0.0471	0.0553	0.0638	0.0728	0.0820
49	0.0468	0.0550	0.0636	0.0726	0.0818
50	0.0465	0.0547	0.0634	0.0724	0.0817

ANNUAL AMORTIZATION TABLE (continued)

Year	9%	10%	11%	12%	13%	14%
1	1.0900	1.1000	1.1100	1.1200	1.1300	1.1400
2	.5684	.5761	.5839	.5916	.5994	.6072
3	.3950	.4021	.4092	.4163	.4235	.4307
4	.3086	.3154	.3223	.3292	.3361	.3432
5	.2570	.2637	.2705	.2774	.2843	.2912
6	.2229	.2296	.2363	.2432	.2501	.2571
7	.1986	.2054	.2122	.2191	.2261	.2331
8	.1806	.1874	.1943	.2013	.2083	.2155
9	.1667	.1736	.1806	.1876	.1948	.2021
10	.1558	.1627	.1698	.1769	.1842	.1917
11	.1469	.1539	.1611	.1684	.1758	.1833
12	.1396	.1467	.1540	.1614	.1689	.1766
13	.1335	.1407	.1481	.1556	.1633	.1711
14	.1284	.1357	.1432	.1508	.1586	.1666
15	.1240	.1314	.1390	.1468	.1547	.1628
16	.1203	.1278	.1355	.1433	.1514	.1596
17	.1170	.1246	.1324	.1404	.1486	.1569
18	.1142	.1219	.1298	.1379	.1462	.1546
19	.1117	.1195	.1275	.1357	.1441	.1526
20	.1095	.1174	.1255	.1338	.1423	.1509
25	.1018	.1101	.1187	.1275	.1364	.1454
30	.0973	.1060	.1150	.1241	.1334	.1428
35	.0946	.1036	.1129	.1223	.1318	.1414
40	.0929	.1022	.1117	.1213	.1309	.1407

INVEST

(INVESTMENT ANALYSIS)

Objectives

This program analyzes the profitability and the cash flow consequences of a particular farm investment. The program computes the net present value of the cash inflows resulting from the investment. It also computes the annual net cash flows after taxes, interest, and principal payments. Inputs into the program are estimates of net income from the investment, marginal tax bracket, opportunity cost of capital, depreciation methods, and loan information.

Credits

This program was developed by Herman Workman, Extension Economist, UMC. A similar version is also available on CMN (Computer Management Network) Virginia Polytechnic Institute. The program was converted from Batch to Terminal operation by Gerald Ehlmann, Programmer/Analyst, Department of Agricultural Economics, UMC.

COOPERATIVE EXTENSION SERVICE **UNIVERSITY OF MISSOURI** **LINCOLN UNIVERSITY**

371
HO-88 (cont'd)
FBMA III

◄ REMOTE ◄ COMPUTER ◄ PLANNING

FARM MANAGEMENT Mumford Hall Columbia, Mo. 65201 phone 314-882-2617

FM-7836

COMPUTER SYSTEM: UMC
Form 1

INPUT FORM FOR INVEST

NAME ______________________________

ADDRESS ______________________________

INVESTMENT ______________________________

1.
   a. Rate of return needed before taxes (percent) __________,
   b. Marginal income tax bracket (percent) .... __________.

2. Major Machinery Investment
   a. Cash difference paid .... __________,
      (purchase price less trade-in)
   b. Amount eligible for investment credit .... __________,
   c. Amount eligible for first year 20% depreciation ... __________,
   d. Depreciable life or payoff period (years) .... __________,
   e. Salvage value .... __________,
   f. Depreciation method .... __________.
      (straight line = 1; sum of years digits = 2;
      200% declining balance = 3; and 150% declining balance = 4)

3. Equipment Trade-in on Above
   a. Remaining depreciation .... __________,
   b. Salvage value .... __________,
   c. Depreciable life (years) .... __________,
   d. Years depreciated .... __________.

4. Related Depreciable Investment (first)
   a. Cash cost .... __________,
   b. Depreciable life (years) .... __________,
   c. Salvage value .... __________.

5. Related Depreciable Investment (second)
   a. Cash cost .... __________,
   b. Depreciable life (years) .... __________,
   c. Salvage value .... __________.

(4/79)

6. **Related Non-depreciable Investment** (land, etc.)
   a. Cash cost or money tied up .... __________,
   b. Appreciation on investment over period .... __________.

7. **Expected Changes in Annual Cash Income**
   a. Net change in annual cash income .... __________,
   b. Number of years before income will begin .... __________.
   (current year is zero)

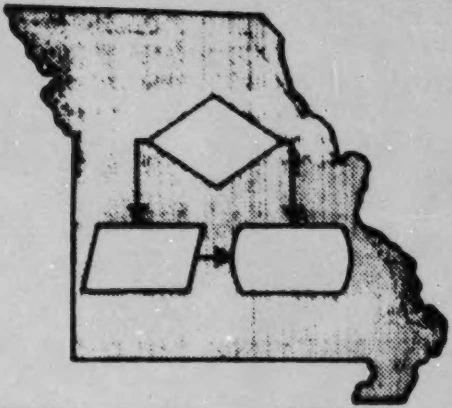
8. **Financing and Investment**
   a. Cash down payment .... __________,
   b. Total money borrowed .... __________,
   c. Type of loan .... __________,
   (installment or amortized = 1;
   unpaid balance or commercial = 2; term = 3)
   d. Length of loan (years) .... __________,
   e. Annual interest rate (percent) .... __________.

9. **Expected Changes in Annual Cash Income by Years**
   (Optional--use only when cash flow changes are variable over the investment period. Otherwise, use Section 7)

YEAR	CASH INCOME	YEAR	CASH INCOME
1	__________	11	__________
2	__________	12	__________
3	__________	13	__________
4	__________	14	__________
5	__________	15	__________
6	__________	16	__________
7	__________	17	__________
8	__________	18	__________
9	__________	19	__________
10	__________	20	__________

NOTE: If you want depreciation schedule and table showing how present value is calculated, when asked to make changes, enter line number 10, then enter "1" on line 10.

COOPERATIVE EXTENSION SERVICE **UNIVERSITY OF MISSOURI** **LINCOLN UNIVERSITY**



◄ REMOTE ◄ COMPUTER ◄ PLANNING

FARM MANAGEMENT   Mumford Hall   Columbia, Mo. 65201   phone 314-882-2617

FM-7836

COMPUTER SYSTEM: UMC
Form 1

INPUT FORM FOR INVEST

NAME RCP EXAMPLE

ADDRESS UMC

INVESTMENT IRRIGATION

1.
   a. Rate of return needed before taxes (percent) 12 ,
   b. Marginal income tax bracket (percent) .... 30 .

2. Major Machinery Investment
   a. Cash difference paid .... 42,000 ,
   (purchase price less trade-in)
   b. Amount eligible for investment credit .... 72,834 ,
   c. Amount eligible for first year 20% depreciation ... 20,000 ,
   d. Depreciable life or payoff period (years) .... 10 ,
   e. Salvage value .... 10,925 ,
   f. Depreciation method .... 1 .
   (straight line = 1; sum of years digits = 2;
   200% declining balance = 3; and 150% declining balance = 4)

3. Equipment Trade-in on Above
   a. Remaining depreciation .... 0 ,
   b. Salvage value .... 0 ,
   c. Depreciable life (years) .... 0 ,
   d. Years depreciated .... 0 .

4. Related Depreciable Investment (first)
   a. Cash cost .... 30,834 ,
   b. Depreciable life (years) .... 20 ,
   c. Salvage value .... 4,625 .

5. Related Depreciable Investment (second)
   a. Cash cost .... 0 ,
   b. Depreciable life (years) .... 0 ,
   c. Salvage value .... 0 .

(4/79)

UNIVERSITY OF MISSOURI LINCOLN UNIVERSITY U.S. DEPARTMENT OF AGRICULTURE AND LOCAL UNIVERSITY EXTENSION COUNCILS COOPERATING
an equal opportunity institution

6. Related Non-depreciable Investment (land, etc.)
   a. Cash cost or money tied up 3,000,
   b. Appreciation on investment over period .... 0.

7. Expected Changes in Annual Cash Income
   a. Net change in annual cash income 0,
   b. Number of years before income will begin .... 0.
   (current year is zero)

8. Financing and Investment

NOTE

   a. Cash down payment 0,
   b. Total money borrowed 75,834,
   c. Type of loan 2,
   (installment or amortized = 1;
   unpaid balance or commercial = 2; term = 3)
   d. Length of loan (years) 7,
   e. Annual interest rate (percent) .... 9.

9. Expected Changes in Annual Cash Income by Years
   (Optional--use only when cash flow changes are variable
   over the investment period. Otherwise, use Section 7)

YEAR	CASH INCOME	YEAR	CASH INCOME
1	8788	11	
2	13182	12	
3	13182	13	
4	13182	14	
5	13182	15	
6	13182	16	
7	13182	17	
8	13182	18	
9	13182	19	
10	13182	20	

NOTE: If you want depreciation schedule and table showing how present value is calculated, when asked to make changes, enter line number 10, then enter "1" on line 10.

INVEST

EXAMPLE INPUT (FORM 1)

```
WHAT IS YOUR PROGRAM NAME?
INVEST <------------------------------------ Call INVEST Program
WHICH INPUT FORM ARE YOU USING (1 OR 2)?
1 <------------------------------------------ Enter input form number--
                                                  see input form

ENTER YOUR NAME
?
RCF EXAMPLE
ENTER YOUR ADDRESS
?
UMC
ENTER INVESTMENT TO BE ANALYZED
?
IRRIGATION
ENTER LINE 1
?
12 30 ------------------------------------- Separate data items with a
ENTER LINE 2                                blank or a comma
?
42000 72834 20000 10 10925 1
ENTER LINE 3
?
0 0 0 0 <---------------------------------- If entire line is blank,
ENTER LINE 4                                enter zeros
?
30834 20 4625
ENTER LINE 5
?
0 0 0
ENTER LINE 6
?
3000 0
ENTER LINE 7
?
0 0
ENTER LINE 8
?
0 75834 2 7 9
ENTER LINE 9 PUTTING FIVE VALUES PER LINE.
?
8788 13182 13182 13182 13182 }
?                             }------------ {Data from last page--use when
13182 13182 13182 13182 13182}              {line 7a is zero
IK I54017A TERMINAL ERROR. REENTER INPUT
13182 13182 13182 13182 13182

YOU MAY NOW CHANGE ANY LINE THAT MAY BE IN ERROR.
ENTER 1 IF CHANGES ARE NEEDED; 0 IF NOT.
?
0
```

FARM BUSINESS MANAGEMENT ANALYSIS

Unit III: Adjusting the Farm Business to Increase Profit

Lesson 9: Planning for Efficient Labor Use

A. Review

The previous lesson, Adjusting Capital Investments to Increase Net Profit, should be reviewed. Possible conclusions may have included:

1. The investment in a farm business and the rate earned on the investment should be identified and a comparison made with similar businesses.
2. Investments needed to implement changes in the crop/livestock program should be identified.
3. Alternatives and their required investments should be listed.
4. The profitability and feasibility of these investments should be determined.
5.
6.

B. Objective

To plan for a profitable and efficient use of labor throughout the year.

C. Motivation

Give the example to the enrollees of how a crop farmer might have all of labor tied up in six months production, and the other six months spent in unproductive activities. Point out that the amount charged against the farm business for family labor should be at least equal to the amount spent on family living. Many small farms often have low net farm income because available labor is not fully employed at productive work.

Ask the group how they have their cropping and livestock programs set up so they have the labor nearly fully employed year round. Ask them to think of ways they could improve their efficiency of labor. List these responses on the chalkboard to be discussed further as you move through the lesson.

D. Key Points

Key points which will be accomplished are as follows:

1. **How can labor be included in planning?**
2. **How should capital and labor be substituted?**

3. **How do I make a quarterly labor calendar?**

4. **How can I use time most productively?**

5. **How does timeliness effect the productivity of labor?**

6. **How can I adjust breeding schedules for Christmas and other holidays?**

E. Introduction of Information

Start the discussion by pointing out that for some farmers capital can be a profitable substitution for labor, but for some of us that are short on capital, labor needs to be used in the place of capital. Finding the correct balance is what this lesson is about.

1. **How can labor be included in planning?**

   a. Labor Resources

   Show TM-53 to start the discussion on planning labor use. The labor resources can be classified as:

   (1) Fixed - This is labor that is committed to the farming operation. Fixed labor is a charge against the farm business whether fully used or not. If fixed labor is not fully used, total farm production for sale may be too low to provide a living for the family, meet operating expenses, and pay interest and principal on the farm debt. Usually 2,000 - 2,400 hours of work per year need to be available per "full-time" person. This is based on labor requirements as 28 hours per sow in farrow finish; 5.5 hours per beef cow; 3.5 hours per acre of corn; 6 hours per acre of hay; etc.

   (2) Variable - This is labor that is hired or paid for only as needed. It may include high school age students used in "busy" seasons as at planting, harvesting, farrowing, etc., and paid on an hourly basis. Some communities have retired farmers or others who are willing to help on a temporary basis and can drive tractors or trucks.

   b. Small Farm Labor

   Show TM-54 to discuss the unique characteristics of labor use on small farms.

   (1) The problem is usually that there is not enough productive work for the labor available

   (2) Methods to increase "full" employment

      a) Control more land-rent or purchase

      b) Farm more intensively

      c) Add livestock

d) Do custom work

e) Find off-farm employment

c. Large Farm Labor

Show TM-55 after pointing out that on many large farms, the workload available is larger than the available labor can handle efficiently.

(1) The problem is one of increasing labor efficiency

(2) Factors affecting labor efficiency and some points to consider for each one:

(a) Size and kind of equipment

1) Could another size of equipment (larger or smaller) be more labor efficient?

2) Could another machine do the same job and be more labor efficient?

(b) Size of fields and arrangements of lots and buildings

1) Can some smaller fields be put to other use with a lower labor requirement?

2) Can the arrangement of lots and livestock buildings be changed to make handling easier?

3) Can the arrangement of crop buildings be changed to make crop handling more efficient?

(c) Distribution of the labor load throughout the year

1) Are there periods of peak demand for labor?

2) Are there times during the year when labor is not fully utilized?

3) Can livestock or cropping practices be changed to spread the labor demand over the year?

(d) Methods of doing work

1) Can the way chores are done be changed to save steps and time?

2) Can cropping practices be organized to reduce the number of trips to the field?

(e) Managerial skill of the "boss"

1) Are the employees managed to reduce wasted time?

2) Do employees know what is expected of them, so that they know what to do next?

(f) Skill of the workers

1) Does each employee have the skills needed to do the job efficiently?

2) Can employees fill in to do the job if someone is sick?

2. How can capital and labor be substituted?

a. Substituting Capital for Labor in Machinery

Point out that the substitution of larger machinery for less labor is a constant question among Missouri Young Farmers. Ask your enrollees how many of them have been thinking about or planning on buying larger machinery so they can expand or improve their farming operations. Distribute HO-89. Draw their attention to the sample fall plowing schedule on this handout and mention to them that this is only a sample; they could do their own planning.

(1) Ask the group how many acres per hour has to be accomplished to get 500 acres fall plowed.

$$\frac{500}{209.9} = 2.38 \text{ acres per hour}$$

(2) Ask the group how many acres per hour needs to be accomplished if only 2/3 of the time is available for plowing because of time required for a hog operation and other fieldwork (combining soybeans, etc.).

$$\frac{500}{140} = 3.57 \text{ acres per hour}$$

(3) Ask the group what alternatives are available. Some of these might be:

(a) Discontinue hog operation

(b) Have soybeans custom combined

(c) Hire another person to help with hogs or with combining

(d) Adjust the hog farrowing schedule so it doesn't interfere

(e) Purchase equipment that will do the job.

(f) Do more spring plowing.

b. Substituting Labor for Capital

It should be brought to the attention of your enrollees that the current high interest rates have encouraged use of labor in place of capital. In addition to considering profitability, many farmers may have a cash flow problem if they buy a machine to substitue for labor.

3. How do I make a quarterly labor calendar?

Show TM-56, "Field Operation Chart" and point out that many field operations are going on at the same time during summer months. Also point out that practically no crop work is done from mid-November to mid-April. What might be done to make use of labor during this slack period?

Show TM-57, "Days Suitable for Field Work in Central Missouri". Distribute copies of HO-90, "Hours Required by Various Crops in Each Quarter". Explain how to use the "Days Available" and "Hours Required" to plan the total amount of labor needed in each quarter for crops.

Distribute copies of HO-91, "Hours Required by Various Livestock Enterprises in Each Quarter". The crop hours and livestock hours will have to be added together and then compared to the hours of operator and family labor available in order to determine the need for hired labor in each quarter. (Work an example at this point in the lesson.)

4. How can I use time most productively?

Efforts to simplify working procedures and routines often have high payoffs in terms of increasing labor efficiency. Keeping track of productive vs. nonproductive time can identify areas where steps and time may be saved. Considerable time can be wasted moving from job to job, bringing tools and other supplies to the work area, opening and closing gates, etc. Changes in the farmstead layout, building design, field size and shape, and the storage site of materials relative to where they will eventually be used can save time and increase labor efficiency. As always, the additional cost of any changes must be weighed against the value and opportunity cost of the labor saved.

Routine tasks such as feeding and caring for livestock should be studied closely for ways to save steps and time. These tasks should be broken down into parts and a series of questions asked about each part. Why is it done? Can it be eliminated? Can several parts of the task be combined? Can it be done at a different time and location? Why is it done this way? Is there a better way? The answer to these questions will help identify any work simplifications that might help improve our efficiency of labor.

Finally, the simple procedure of planning and scheduling work in advance will eliminate wasted time. Annual and daily schedules are both useful. On an annual schedule, tasks which must be done at a specific time can be scheduled in first and those that are not time-specific, such as building repairs and painting, should be planned for months of slack labor. A daily work schedule can be planned in a few minutes each morning or evening. Time used in organizing the next day's tasks and their order of importance is time well spent.

Another thing to consider is hiring people to do specialized jobs if they can do them cheaper and more efficiently than you can. As an example, a skilled mechanic @ $8.00/hour may be more than twice as fast as an employee being paid $4.00/hour at certain tasks.

Give the enrollees time to discuss these ideas and the effect they might have in their own operations.

5. How does timeliness effect the productivity of labor?

Distribute copies of HO-92, Timeliness Values and Losses, to the enrollees and ask them to read them. This handout contains charts on estimating timeliness losses and figuring values for these delays. The charts and figures are for cropping enterprises but their application could be expanded upon by your enrollees to give some ideas on other farm applications.

a. Chart I contains factors for estimating timeliness losses as determined by their importance.

b. Chart II contains operations and their respective values. These operations are stated with the most favorable time period being used as a basis for completion.

c. Use a sample problem as, "What type of loss will a farmer have if his 40 acres of soybeans are not harvested on the optimum day?" The acres in the field (40) to be worked are multiplied by the very high factor (.010) because soybean harvesting is listed as very high. This number (.40) is then multiplied by the number of days this operation has been delayed, to give the crop acres lost figure. (.4 acre per day or 16 bushels per day if the normal yield is 40 bushels per acre.)

    (1) Expand upon the above problem by getting average crop prices from your enrollees and then placing these prices in the above problem or simiiar problems. As an example, if $6.00/bu is used, the cost of delay in harvesting is $96/day (16 bu x $6.00).

(2) Have your enrollees use some of their own crop acreage to work a loss problem. Discuss with your group the application of some of these loss figures and how they effect their respective operations.

Ask the group what type of factors might influence timeliness. Some of their answers might be machinery size, weather conditions, improper allocation of labor hours, machinery repair, marketing schedules not utilized, and breeding calendars abandoned. If your enrollees have brought more ideas than the ones given, capitalize on these. They might want to discuss problems they are having. Give the group the ideas not previously mentioned and ask them which of these they have control over. Remind the group of the quarterly calendar and ask if they can change it in any fashion.

6. **How can I adjust breeding schedules for Christmas and other holidays, etc.?**

Point out that a frequent complaint of farmers with livestock enterprises is being "tied down" during holidays. Part of this problem can be solved by planning farrowing, etc., to avoid these days.

Distribute copies of HO-93, "Gestation Tables for Swine, Cattle, and Sheet," and HO-94, "Calendar of Major Holidays." Point out that the gestation tables can be used to plan farrowing, calving, and lambing seasons so that they do not interfere with major holidays and vacation time. (If you want sows to farrow on January 3, breed them on September 10.)

F. Group Discussion

Let the group discuss highlights of ideas on making the trade-off between capital and labor.

G. Conclusions

Conclusions that might be listed include:

1. Labor use needs to be planned.
2. Capital and labor can be substituted for each other and the ratio should be based on profitability and feasibility (cash flow).
3. Timeliness must be considered in planning machinery purchases.
4.
5.
6.

Announcements

Next meeting, we will discuss

Social

On-the-Farm Instruction

Ask each couple to determine the total hours of labor required for their farm business using HO-90 and HO-91 and the hours available prior to your visit. The visit could include working on a revised labor plan for their farm to increase labor efficiency. Also spend some time discussing the mix of capital and labor on their farm and how they might make improvements.

Materials Needed

Instructor

TM-53:	Labor Resources
TM-54:	Small Farm Labor
TM-55:	Large Farm Labor
TM-56:	Field Operation Chart
TM-57:	Days Suitable for Field Work in Central Missouri

Student

HO-89:	Substituting Capital for Labor in Machinery Selection
HO-90:	Hours of Labor Required Per Acre Per Quarter For Various Crop Enterprises
HO-91:	Hours Required By Various Livestock Enterprises Per Quarter
HO-92:	Timeliness Values and Losses
HO-93:	Gestation Table
HO-94:	Calendar of Major Holidays

Missouri Farm Business Analysis Record Book
Prior year's Farm Record Analysis

LABOR RESOURCES

1. FIXED:
    - A. OPERATOR
    - B. FAMILY
    - C. YEAR-ROUND HIRED

2. VARIABLE:
    - A. SEASONAL
    - B. PART-TIME
    - C. LABOR INCLUDED IN CUSTOM MACHINE HIRE

SMALL FARM LABOR

1. PROBLEM: USUALLY NOT ENOUGH PRODUCTIVE WORK FOR THE LABOR AVAILABLE

2. METHODS TO INCREASE "FULL" EMPLOYMENT

   A. CONTROL MORE LAND--RENT OR PURCHASE

   B. FARM MORE INTENSIVELY

   C. ADD LIVESTOCK

   D. DO CUSTOM WORK

   E. FIND OFF-FARM EMPLOYMENT

LARGE FARM LABOR

1. PROBLEM: TO INCREASE LABOR EFFICIENCY

2. FACTORS AFFECTING LABOR EFFICIENCY

   A. SIZE AND KIND OF EQUIPMENT

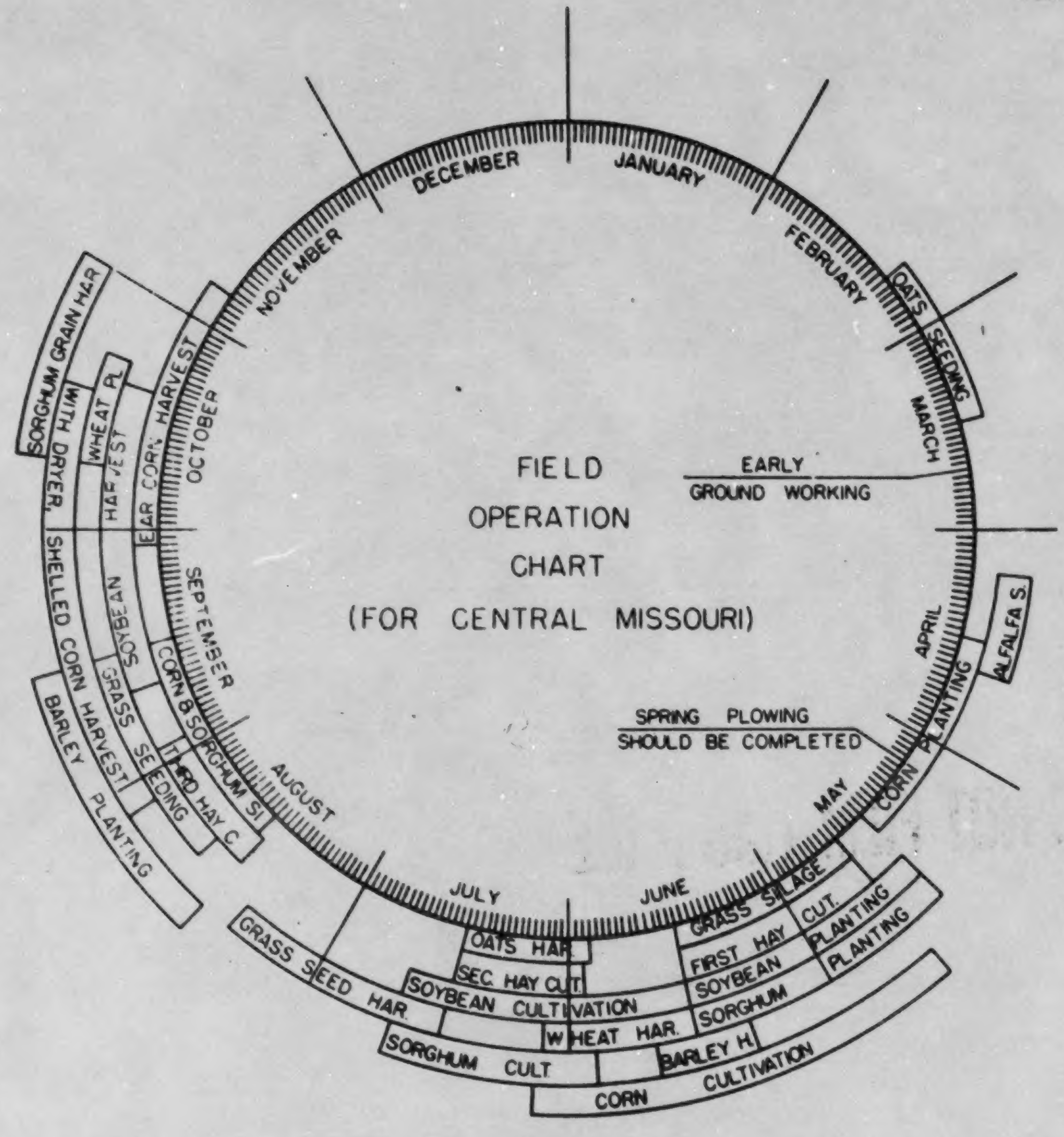
   B. SIZE OF FIELDS AND ARRANGEMENTS OF LOTS AND BUILDINGS

   C. DISTRIBUTION OF LABOR LOAD THROUGHOUT THE YEAR

   D. METHODS OF DOING WORK

   E. MANAGERIAL SKILL OF THE "BOSS"

   F. SKILL OF THE WORKERS



Field Operation Chart

Issued in furtherance of cooperative extension work, acts of May 8 and June 30, 1914, in cooperation with the United States Department of Agriculture. Carl N. Scheneman, Vice President for Extension, Cooperative Extension Service, University of Missouri, Columbia, Mo. 65201.
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1202

DAYS SUITABLE FOR FIELD WORK IN CENTRAL MISSOURI[1]

MONTH	1978	1979	AVERAGE
APRIL	7.2	4.5	5.85
MAY	7.8	14.6	11.2
JUNE	17.9	19.8	18.85
JULY	24.1	22.6	23.35
AUGUST	21	19.1	20.05
SEPTEMBER	27	26.4	26.7
OCTOBER	20.3	22.2	21.25
NOVEMBER	15.1	15.7	15.4

---

[1] MISSOURI CROP AND LIVESTOCK REPORTING BULLETIN

SUBSTITUTING CAPITAL FOR LABOR IN MACHINERY SELECTION

SAMPLE MISSOURI FALL PLOWING SCHEDULE

OPERATION	CALENDAR PERIODS	AVERAGE[1] WORKING DAYS	WORKING HOURS PER DAY	TOTAL HOURS AVAILABLE
FALL PLOWING	OCT 15-31	12.4	8.0	99.2
FALL PLOWING	NOV 1-15	8.0	7.5	60.0
FALL PLOWING	NOV 16-30	7.8	6.5	50.7

TOTAL HOURS AVAILABLE--209.9

---

[1] MISSOURI CROP AND LIVESTOCK REPORTING BULLETIN 1979

HOURS OF LABOR REQUIRED PER ACRE[1]
PER QUARTER FOR VARIOUS CROP ENTERPRISES

	CORN GRAIN	CORN SILAGE	ALFALFA HAY	WHEAT	SOYBEANS
JANUARY FEBRUARY MARCH	0	0	0	0.12	0
APRIL MAY JUNE	2.57	2.17	5.2	0.33	1.9
JULY AUGUST SEPTEMBER	0	6.33	5.4	0.33	0
OCTOBER NOVEMBER DECEMBER	1.63	1.5	0.2	0.72	1.5
TOTAL HOURS	4.2	10.0	10.8	1.5	3.4

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[1] TOTAL HOURS ARE FROM MANUAL 75 (1981); QUARTERLY HOURS PARTIALLY ESTIMATED.

HOURS REQUIRED BY VARIOUS LIVESTOCK ENTERPRISES PER QUARTER

	Beef Cow Spring Calving	Beef Cow Winter Calving	Beef Cow Fall Calving	Background Calf Over Winter	Background Calf Over Summer	Finish Calf Bought In Fall (A)
January February March	3.3	4.2	3.75	1.5	0	1.4
April May June	1.1	1.4	1.125	0	.43	.8
July August September	.55	.7	1.125	0	.43	0
October November December	.55	.7	1.5	1.5	.14	1.3
Total Hours	5.5	7	7.5	3	1	3.5

	Dairy	Sow and Feeder Pigs 40 lbs. (B)	Sow and Feeder Pigs 60 lbs. (B)	Sow and Market Hogs (B)	Sheep Spring Lambing
January February March	14.6	6.3	7.7	9.8	.6
April May June	13.4	3.6	4.4	5.6	.15
July August September	13	3.6	4.4	5.6	.15
October November December	14	4.5	5.5	7	.1
Total Hours	55	18	22	28	1

TIMELINESS VALUES AND LOSSES

CHART I

Estimating Timeliness Losses

Timeliness Importance	Timeliness Loss % Loss Per Day	Timeliness Factor
Very High	1.0%	.010
High	0.8%	.008
Medium	0.6%	.006
Low	0.4%	.004
Very Low	0.2%	.002

CHART II

Timeliness Values Guide

Timeliness Importance	Value % Per Day	Operation
Very High	1.0%	Corn Planting Sowing Oats Harvesting Soybeans Hay Operation
High	0.8%	Planting Beans
Medium	0.6%	Harvesting Oats
Low	0.4%	Harvesting Wheat and Barley
Very Low	0.2%	Harvesting Corn

GESTATION TABLE

Animal	Gestation Period (Days)	Cycle Length (Days)	Duration of Heat (Hours)
Hogs	114	21	48-72
Cattle	280	21	10-24
Sheep	145	16.5	30-36

CALENDAR OF MAJOR HOLIDAYS

January: 1 - New Year's Day

February: Third Monday - Washington's Birthday

March: None

April: 4(1982 only) - Palm Sunday
9(1982 only) - Good Friday
11(1982 only) - Easter

May: Second Sunday - Mother's Day
Last Monday - Memorial Day

June: Third Sunday - Father's Day

July: 4 - Independence Day

August: None

September: First Monday - Labor Day

October: Second Monday - Columbus Day

November: 11 - Veteran's Day
Last Thursday - Thanksgiving Day

December: 25 - Christmas

FARM BUSINESS MANAGEMENT ANALYSIS

UNIT III: Adjusting the Farm Business to Increase Profit

Lesson 10: How Can I Control Costs?

A. Review

The previous lesson, Planning for Efficient Labor Use, should be reviewed. List all conclusions reached at the last meeting. Possible conclusions may have included:

1. Labor use needs to be planned.
2. Capital and labor can be substituted for each other and the ratio should be based on profitability and feasibility.
3. Timeliness must be considered in planning machinery purchases.
4.
5.

B. Objectives

To look at the cost structure and cost control on my farm and determine if adjustments can and need to be made.

C. Motivation

Write on the chalkboard the question, "Where can I cut costs in my farming operation?" Ask the enrollees to respond to this question. As they think of answers to this question, write their responses on the chalkboard. It will probably become quickly apparent that it is not easy to determine how and where costs can be cut. Point out the reasons why. First of all, most farmers try to buy only what they need to begin with and if they have a perceived need for something, it is not likely to fit into a list of things that can be cut. Secondly, anytime we decide to cut a cost, the effects are felt in a number of places, depending on what it is. If we decide for example, to cut the amount of interest we are paying, we will have to answer the following questions - Will I have to cut production to do this? Will I have to sell some intermediate or long term assets? How would it change the enterprise make-up on my farm? How will it affect my debt structure? How will it affect my net income? Will I still have income producing ability, or would it hamper my ability to operate? Thirdly, it seems that the times when we need to cut costs the most, it is the hardest to do. We all tend to operate in the same general up and down cycle. It also seems that when things are at a low, we need operating capital more than ever, making it hard to cut costs.

D. Key Points

1. **How does my "cost control" compare with other farms?**

2. **How do fixed and variable costs react with per unit costs?**

3. **How should overhead costs be distributed to for enterprise analysis?**

4. **How will eliminating an enterprise affect costs?**

5. **What are some leaks I can look for?**

E. Introduction of Information

Explain to the enrollees that we will first try to get a handle on cost control by looking at the cost breakdown on our own farms and then look at ways to review these costs and redistribute and adjust them for maximum profit.

1. **How does my "cost control" compare with other farms?**

a. It needs to be established first in this lesson just what "cost" means since there are a number of ways of looking at costs. use TM-58, cost classifications, as you discuss the various ways of approaching a cost analysis of a business or any facet of that business. The following guidelines may help in your discussion.

(1) Cash vs. Non-cash

The definition of costs implies that a charge is made for items used in production of commodities. Costs may or may not include a cash outlay at a given time. Cash costs are easily understandable and include things like fertilizer, fuel, seed, cash interest, etc. Non-cash costs are a more difficult concept to understand and include things like unpaid labor, interest charge on equity capital, etc. We have often been guilty, as farmers, to look strictly at cash costs and ignore non-cash costs and how they affect the farm business. In general, cash costs may be all that is necessary to make short-run decisions, but non-cash must be included in the long run planning process.

It is important to point out that on the FBMA, Farm Business Analysis, (blue forms) cash costs are distributed on the left side, while all costs are distributed on the right side where returns and costs of the total business are summarized.

(2) Short Run vs. Long Run

The short run has been defined as being a time period long enough to permit changes in production by varying inputs like feed, herbicides, fertilizer, custom work, etc. These inputs are not necessarily associated with the size of the business. Short run inputs are considered to be variable.

The long run refers to the cost structure of the farm business over a period of time long enough so that no resource need be considered fixed. In other words, it is a long enough time that a combine, bull, or land are considered variable. Costs such as these would be fixed in the short run.

Point out to the enrollees that farmers need to be able to understand both the short run as well as the long run cost structures in order to plan effectively.

(3) Fixed vs. Variable

Fixed costs are also referred to as "ownership" or "overhead" costs. Fixed costs are considered constant for a specified time period, regardless of the level of production. The assumption is made that the greater the output, the lower the per unit fixed cost.

Variable, or "operating" costs are defined as those costs that vary as production changes over a specified period of time.

Ask the enrollees to refer to their copies of the Farm Business Analysis and determine which costs are fixed and which are variable. Group them on the chalkboard as they go down the list. It might be helpful to group the fixed costs together as the DIRTI five:

Depreciation
Interest
Repairs
Taxes
Insurance

Remind them that all costs are variable in the long run and that when variable inputs like fertilizer are applied, they become fixed. There is also a fine line sometimes in determining whether repairs and interest are fixed or variable costs. We would normally assume that repairs required to keep an asset functional would be variable while major repairs like a tractor overhaul would be considered fixed.

b. Hand the enrollees a copy of HO-95, "Farm Costs", and ask them to use their last record analysis to determine which costs on their farms were above or below average. The purpose of doing this exercise is twofold. First, it will give a feel for how many of the expenses are above and below the average farm for an overall farm cost picture. Secondly, it will highlight those costs which the enrollees think they might be able to do something about. As enrollees do this, point out that all of the costs are summarized on the right side of the analysis under Farm Returns and Costs, except for Cash Interest Paid which is on the left side.

2. **How do fixed and variable costs react with per unit costs?**

a. It is critical to understand how fixed and variable costs react with per-unit costs to be able to make good decisions in terms of deciding at what point to produce or whether to purchase new or used equipment or use custom work, etc. Point out to the enrollees that per-unit costs refer to things such as cost-per-hour, cost-per-acre, cost-per-bushel, cost-per-pound, cost-per-bale, etc. We analyze the fixed and variable costs of producing different enterprises in terms of the units in which they are sold or used so that we can compare costs and returns on an equal basis.

b. Give the enrollees a copy of HO-96, "Problem 1: Fixed/Variable Costs" and ask them to work through the problem. Discuss the problem as they work through it and use the problem to reinforce the principles of fixed and variable costs, They are summarized as follows.

(1) Fixed costs will become less per acre of use as the number of acres on which the machine is used increases.

(2) Variable costs will remain basically the same per acre regardless of the number of acres on which the machine is used.

(3) The more the machine is used, the less the total cost per acre.

c. You might want to ask the enrollees other questions associated with this example. eg. What would be the fixed cost per acre if the farmer used the haybine on 600 acres? What would be the variable cost in that case? If the farmer can custom hire someone to haybine for $5.50 an acre, what should he do? How else might I be able to reduce cost/acre? (purchased used machine, etc.?)

d. Give enrollees a copy of HO-97, "Problem 2: Fixed/Variable Costs," and let them work through it. This problem takes a little bit different approach in looking at the interaction of fixed and variable costs by determining the point at which higher fixed costs are overcome by superior operating efficiency as in the case of diesel vs. gasoline. As they work through the problem, discuss the implications.

e. Have the enrollees work other examples involving fixed and variable costs that will illustrate the principles involved. A concept that is very important is that we sometimes must operate when only variable costs are being covered in order to minimize losses and create cash flow. This would especially be true in the case of confinement buildings, etc. Caution the enrollees that this is only a short run solution and that in the long run, we will go broke doing this.

f. Conclude this key point by having the enrollees look at their fixed costs as compared to the average and then their variable as compared to the average. Use the information they put together on HO-95, "Farm Costs" to do this. The bottom line here is that high fixed or overhead costs can be a real noose in times of poor profitability since they have to be paid regardless of the level of production. We need to make sure we can cover both fixed and variable in the long run. (unless inflation helps dissolve our fixed costs as it has so often done in the past.)

3. **How should overhead costs be distributed to enterprises for enterprise analysis?**

It is fairly easy to distribute variable costs to the enterprises they belong to. Items like fertilizer, seed, and feed are purchased and used in the production of specific enterprises. On the other hand, overhead costs like machinery repair depreciation, building repair and depreciation, insurance, taxes, etc., are more difficult to distribute since they are not specific to any one enterprise. In order to do complete enterprise analysis, both fixed and variable costs need to be represented. There are several ways to distribute overhead costs to the various enterprises on the farm. Discuss these with the enrollees, using the guidelines below as basis for your discussion:

a. Percentage of Farm Returns

Under the percentage of returns method, overhead costs are distributed to enterprise by the percentage of total farm returns contributed by that enterprise. In other words, if hog returns comprise 30% of total farm returns, then assign 30% of general overhead costs to the hog enterprise.

The disadvantage of this method is that some enterprises may contribute a great deal to returns but would not be profitable if required to absorb a percentage share of overhead cost. Supplementary enterprises like beef cows on a crop farm would suffer under this method.

b. Percentage of Total Variable Cost

Under this method, overhead costs are distributed according to the percentage of total variable costs attributed to the enterprise. For example, if 20% of the total variable costs are assigned to the corn enterprise, then 20% of the overhead costs are assigned to corn, etc.

The disadvantage of this method is that some enterprises require a high percentage of variable costs in relation to returns. An example would be fat cattle. A fat cattle enterprise requires high variable inputs per unit of output and would probably receive a disproportionate share of the overhead costs.

c. Percentage of Labor

Under this method, overhead costs were distributed according to the percentage of total farm labor attributes to each enterprise.

Again the drawback of this method is that high labor enterprises like farrow-finish hogs might get more of their fair share of overhead, while a low labor crop enterprise might not receive enough.

d. Common Sense Method

This method involves the operator using common sense to distribute overhead costs to enterprises on the basis of their contribution and relative importance to the total farm business. This will probably mean that primary enterprises will receive the lion's share of overhead, while supplementary and complementary enterprises will receive a proportionately lesser share.

After discussing the methods of overhead distribution, ask the enrollees what method might work the best for them. It is very possible that a combination of methods will be the most appropriate. Each farm business is unique and will need an individual plan in terms of overhead cost distribution.

Work an example, using a sample farm, and distribute the overhead costs in the most logical way. Let the enrollees decide how this should be done.

4. How will eliminating an enterprise affect costs?

When we think about cutting costs, one alternative is to cut out an entire enterprise. The problem with deleting an enterprise is that it is difficult to stop all costs associated with it. The variable costs can be cut but the machinery, buildings, land, and other fixed assets that have contributed to the enterprise may be hard to separate and sell. In the long run the business will adjust, but in the short run, the fixed costs may be hard to stop unless they can transfered to an expansion in another enterprise.

Have the enrollees evaluate the effect of eliminating an enterprise on a sample farm by determining which and how much of each fixed and variable cost will be affected by elimination of a major enterprise to the farm.

5. **What are some leaks I can look for?**

While showing TM-59, "Stopping Cost Leaks," discuss several ways a farmer can cut costs in the farm business. It is imperative that when we talk about cutting cost, that we remember to cut costs that result in a higher net income and that we not cut costs that will leave the business in worse shape than before.

F. Group Discussion

Sufficient time should be allotted for enrollees to ask questions and discuss cost control in the farm business. Be sure that the enrollees understand that cutting cost is not easy and that we must be careful not to cut income at the same time we cut costs.

G. Conclusions

Conclusions which may be reached include:

1. Cost cutting needs to include an analysis of it's effect on the farm business.
2. Costs include both cash and non-cash items.
3. All costs are variable in the long run.
4. Variable costs are fairly constant on a per-unit basis while fixed costs vary with the volume of production on a per-unit basis.
5. The method of distributing overhead costs to the various enterprises will vary between farms.
6. Farmers should search for ways to stop cost "leaks" in the farm business.
7.
8.

Announcements

Social

On-the-Farm Instruction

When visiting enrollees following this lesson, go over their last year's record analysis in detail and evaluate the costs on enrollee's farm. See if you can identify any ways to reduce costs without hampering income producing ability. Evaluate the fixed/variable cost mix in the farm business.

Discuss with the enrollees the various ways of distributing overhead costs to the enterprises in their farm business. Help them arrive at a logical method they can use. Most enrollees only distribute variable costs for the first year or two of analysis, but need to work toward a more complete distribution of costs to enterprises as they become more knowledgeable about total farm analysis.

This might also be a good time to help the enrollees determine the cost per unit of a new machine, building, or other investment being considered by the enrollees.

Materials Needed

Instructor

TM-58: Cost Classifications
TM-59: Stopping Cost "Leaks"

Student

HO-95: Farm Costs
HO-96: Problem 1: Fixed/Variable Costs
HO-97: Problem 2: Fixed/Variable Costs
Missouri Farm Business Analysis Record Book
Prior year's Farm Record Analysis

COST CLASSIFICATIONS

CASH VS. NON-CASH

SHORT RUN VS. LONG RUN

FIXED VS. VARIABLE

STOPPING COST "LEAKS"

REDUCE UNNECESSARY EXPENSES

SUBSTITUTE LABOR FOR CAPITAL

USE COST EFFICIENT ENTERPRISES

INCREASE PRODUCTION EFFICIENCIES

USE CUSTOM HIRE INSTEAD OF OWNERSHIP

	My Costs	Average	Mine-Higher than Average	Mine-Lower than Average	Needs Possible Adjustment
FARM COSTS: (Per Tillable Acre) Soil Fertility					
Pesticides					
Seed					
Utilities					
Machinery Repairs					
Machine Hire					
Fuel and Oil					
Auto-Farm Share					
Machinery Depreciation					
Drying and Storage					
Building Repair					
Building Depreciation					
Labor Unpaid					
Labor Paid					
Livestock Supplies and Services					
Insurance					
Taxes					
Miscellaneous					
Cash Interest Paid					

PROBLEM 1: FIXED/VARIABLE COSTS

A farmer is trying to decide whether or not to purchase a new haybine. He generally cuts and bales about 300 acres of hay per year. The haybine is going to cost $9500.00. The farmer figures the practical life of the haybine to be about 8 years and that it would only have a salvage value of about $1000.00 at the end of that time. Interest on average investment is figured to be about 13%. Repairs are estimated by the dealer to be about $250.00 per year. He can haybine an average of 3 acres per hour. He figures the cost of his labor and variable tractor costs to be about $7.00 and $3.00 per hour respectively.

1. How much does it cost to operate the haybine per acre?

Depreciation/yr = ____________

*Interest on ave. Investment/yr = ____________

Repairs/yr = ____________

Total Fixed Costs per year = ____________

Fixed Costs per acre = ____________

Labor/acre = ____________

Tractor/acre = ____________

Total Variable costs per acre = ____________

Total cost per acre = ____________

*Ave. Investment = $\frac{\text{Purchase price + salvage value}}{2}$

2. How many acres would he have to use the haybine on to get the cost per acre down to $6.00 (assume fixed cost per year remains the same as above)?

KEY: Problem 1

1. Depreciation/yr = $1063.00
($9500 - 1000 = 8500 ÷ 8 = 1063)

Interest on ave. Investment/yr = $683.00
($9500 + 1000 = 10,500 ÷ 2 = 5250 x .13 = 683)

Repairs/yr = $250.00

Total fixed costs/yr = $1996.00

Fixed costs/acre = $6.65
($1996 ÷ 300 ac. = 6.65)

Labor/acre = $2.33

Tractor's Fuel and Operation/acre = $1.00

Variable costs per acre = $3.33/acre

Total costs per acre = $9.98
($3.33 var. + $6.65 fixed = $9.98)

2. $6.00 - 3.33 variable = $2.67

$1996 fixed/year ÷ $2.67 = 748 acres per year

PROBLEM 2: FIXED/VARIABLE COSTS

Farmer John is needing to buy a pickup and has heard people talking about the new diesel engines being offered as an option in light farm trucks. He does some checking with a local dealer and finds that the pickup with the options he needs sells for $9422 with a gasoline engine and $11,122 with a diesel engine. The diesel pickup is expected to last 7 years and the gasoline pickup 7 years with no salvage value. Diesel fuel costs $1.10/gallon and gasoline $1.20/gallon and John figures it will probably stay in about that relationship. The gas pickup has an overall MPG rating of 15 miles per gallon compared to 23 MPG for the diesel. Insurance costs $150 every 6 months for the gas and $165 every 6 months for the diesel. The interest rate on average investment is estimated to be 12%. Major repairs are estimated at $300/year for both pickups. Lubrication and general maintenance is estimated to be about 2¢ per mile on the gas and 3¢ per mile on the diesel.

1. How many miles must I drive in order to justify the diesel?

COST COMPARISON

FIXED COSTS:	GASOLINE	DIESEL
1. Depreciation/yr.	______	______
2. Interest on Ave. Investment/yr.	______	______
3. Repairs/yr.	______	______
4. Insurance/yr.	______	______
TOTAL TIXED COST/YR.	______	______

OPERATING COSTS:		
1. Fuel/mi.	______	______
2. Lubrication & Gen. Maint./mi.	______	______
TOTAL OPERATING COSTS/MI.	______	______

Extra Fixed Costs $______/year = ______ miles per year to justify diesel.
Less Operating Costs $ /mile

2. If John buys the diesel pickup and drives it 10,000 miles per year, what is the total cost per mile?

KEY: Problem 2

FIXED COSTS:	GASOLINE	DIESEL
1. Depreciation/yr.	1346	1589
2. Interest on Ave. Investment/yr.	565	667
3. Repairs/yr.	300	300
4. Insurance/yr.	300	330
TOTAL FIXED COST/YR.	2511	2886

OPERATING COSTS:		
1. Fuel/mi.	.08	.0478
2. Lubrication & Gen. Maint./mi.	.02	.03
TOTAL OPERATING COST/MI.	.10	.0778

$$\frac{\text{Extra Fixed Costs}}{\text{Less Operating Costs}} \quad \frac{\$\ 375\ /\text{year}}{\$.0222/\text{mile}} = \underline{16892} \text{ miles per year to justify diesel}$$

2. $2886 ÷ 10000 mi. = .2886 (fixed cost/mi.)
+ .0778 (ap. cost/mi.)
$.3664 (total cost/mile)

NOTE: Refigure this problem using a salvage value that you think is reasonable for a 7 year old pickup.